This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

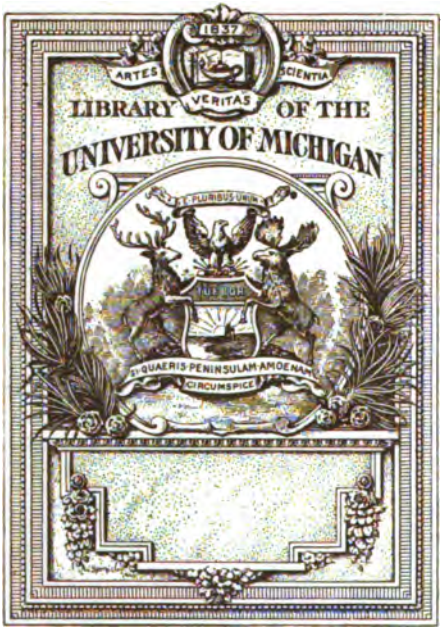
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`



Digitized by Google

LD
450
C3

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

UNIVERSITY

OF

PENNSYLVANIA

CATALOGUE AND ANNOUNCE

1885-86

PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1885

Digitized by Google

Digitized by Google

UNIVERSITY

OF

PENNSYLVANIA

CATALOGUE AND ANNOUNCEMENT

1885-86

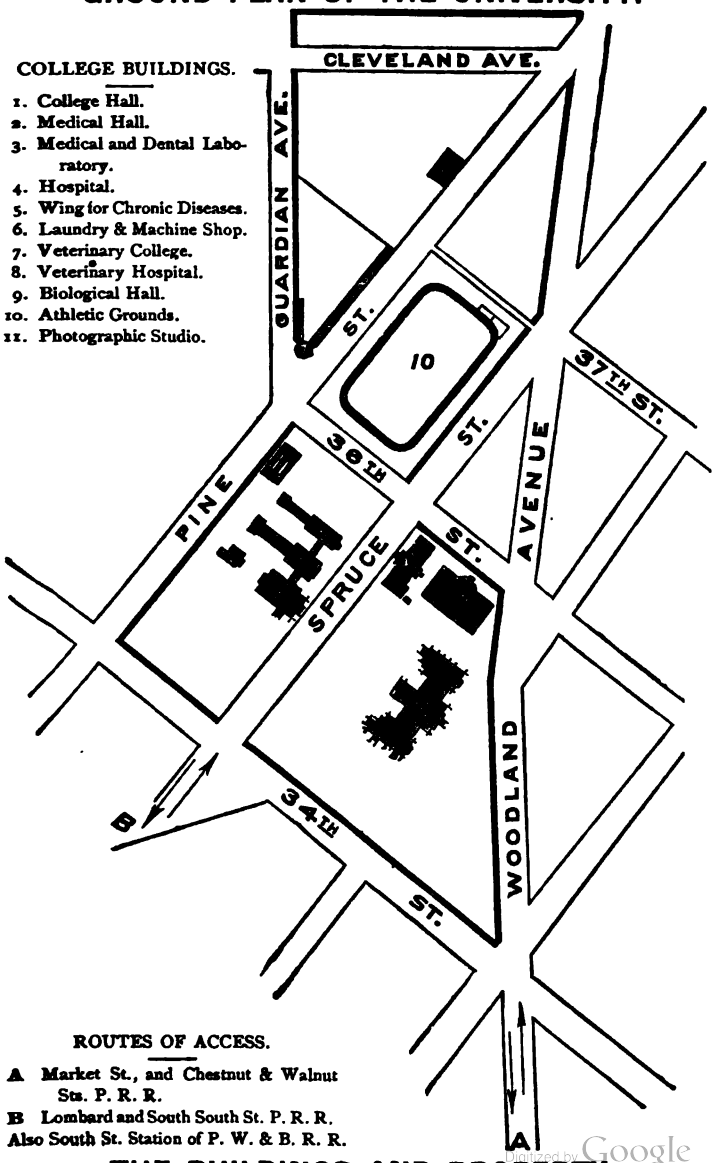
PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1885

Digitized by Google

Press of Globe Printing House, Philadelphia.

Digitized by Google

GROUND PLAN OF THE UNIVERSITY.



THE BUILDINGS AND PROPERTY.

Digitized by Google

1885	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JULY.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
AUG. .	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
SEPT.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	...	...	...
OCT. .	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
	...	...	...	...	...	...	...
NOV.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	...	...	...	...	...
DEC. .	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...

1886	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JAN. .	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
FEB. .	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	...	...	...	...	...	...
MAR.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...
APRIL	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	...
MAY .	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
JUNE	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	...	...	...

1886	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JULY.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
AUG. .	...	...	...	...	...	...	...
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
SEPT.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	...	...
OCT. .	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
NOV.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
DEC. .	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...

Digitized by Google

CALENDAR.

1885.	
Sept. 15, Tuesday.	First Term begins: College Department and Department of Biology. 10 A.M.
Oct. 1, Thursday.	Winter Session begins: Departments of Medicine, Law, Dentistry and Veterinary Medicine.
" 5, Monday.	First Term begins: Department of Music and Auxiliary Department of Medicine.
Nov. 26, Thursday.	Thanksgiving Day. (Holiday.)
Dec. 24, Thursday.	Christmas Recess begins.
1886.	CHRISTMAS RECESS.
Jan. 4, Monday.	Christmas Recess ends. 9 A.M.
" 28, Thursday.	Mid-Year Examinations end: College Department.
" 29, Friday.	First Term ends: College Department (Chapel at 10 A.M.) and Department of Law.
Feb. 1, Monday.	Second Term begins: College Department, and Departments of Biology and Law.
April 12, Monday.	Final and Term Examinations begin: Departments of Medicine and Dentistry.
" 21, Wednesday.	Examination for Resident Physicians, University Hospital. 12 Noon.
" 21, Wednesday.	Easter Recess begins: College Department, 5 P.M.
" 23, Friday.	Good Friday. (Legal Holiday.)
	EASTER RECESS.
" 27, Tuesday.	Easter Recess ends: College Department. 9 A.M. Examination for Resident Physicians, University Hospital.
May 1, Saturday.	Annual Commencement: Departments of Medicine and Dentistry. 12 Noon.
" 10, Monday.	Spring Session opens: Departments of Medicine and Dentistry. 11 A.M.
" 14, Friday.	Senior Examinations, College Department, end.
" 20, Thursday.	Examinations begin: Department of Law and Auxiliary Department of Medicine.
" 31, Monday.	Second Term ends: Department of Law.

Digitized by Google

287980

June	14, Monday.	Announcement of Results, Annual Examinations: College Department. 10 A.M.
"	15, Tuesday.	Annual Commencement: College Department, Departments of Law and Biology, and Auxiliary Department of Medicine. 11 A.M.
"	16 to 23.	Entrance Examinations: College Department. 9 A.M. each day.

SUMMER VACATION.

Sept.	7 to 12.	Entrance Examinations: College Department. 9 A.M. each day.
"	15, Wednesday.	First Term begins: College Department and Department of Biology. 10 A.M.
"	16, Thursday.	Introductory Course opens: Departments of Medicine, and Dentistry. 11 A.M.
"	24, Friday.	Competitive Examination for Medical Scholarships. 12 Noon.
"	28, Tuesday.	Examinations for Admission to Advanced Standing, and Re-examination of Undergraduates, Departments of Medicine and Dentistry. 12 Noon.
"	29, Wednesday.	Entrance Examination: Departments of Medicine and Veterinary Medicine. 12 Noon.
Oct.	1, Friday.	Winter Session opens: Departments of Medicine, Dentistry and Veterinary Medicine. 12 Noon.
"	1, "	First Term begins: Department of Law.
"	4, Monday.	First Term begins: Department of Music and Auxiliary Department of Medicine.

Digitized by Google

University of Pennsylvania.

A pamphlet, called: *Proposals Relative to the Education of Youth in Pennsylvania*, written in 1749 by Dr. FRANKLIN, led to an association, by certain citizens of Philadelphia, for the purpose of founding a School on the lines suggested by that wise counsellor. Over two thousand pounds, equivalent to at least forty thousand dollars at the present time, were raised and a building, which had been erected to accommodate the thronged congregations of the celebrated Whitfield, was purchased, and in 1751 the Academy, consisting of an English, a Mathematical, and a Latin School, each under a Master, with subordinate tutors and ushers, was formally opened. So successful was the undertaking that in two years the Trustees applied to the Proprietaries for a Charter, which was thus granted: —

THOMAS PENN and RICHARD PENN, true and absolute proprietors and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent, and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumstead, Thomas White, William Cole-

Digitized by Google

man, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favouring such pious, useful, generous, and charitable designs, hoping, through the favour of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do*, for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others, as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania. . . . . .

In witness whereof, we have caused these our letters to be made patent; in the twenty-seventh year of the reign of our sovereign lord, George the Second, who now is king of Great Britain, France, and Ireland, &c., and in the year of our Lord, one thousand seven hundred and fifty-three."

Under the skillful training of the learned Rev. William Smith the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring Collegiate Degrees. The petition was granted substantially as follows:

Digitized by Google

Thomas Penn and Richard Penn, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting:

And whereas the said trustees have, ... represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well constituted seminaries, youth are entitled to their first *degree. Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, ... to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and the English tongue, which Provost, Vice-Provost, and Professors, so constituted and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania;* and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and charitable school: *Provided always*, That the said trustees, the Provost, and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. . . . . excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania, to qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties

Digitized by Google

above mentioned, any thing in this provision to the contrary notwithstanding . . . . *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M.A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M.A., to be the first and present Vice-Provost of the same . . . . *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, ... to admit any the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. . . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any such degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy . . . . . .

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five.

The First Commencement was held May 17th, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times which followed, the Provost, Mr. Smith, was a Tory of so pronounced a type that he was thrown into prison by the Legislature; but, in faithfulness to his sworn duties as Provost, he received his classes in gaol, and continued his instructions to them there while still a prisoner. He was set at liberty, however, for the purpose of going to England to make a personal appeal to the king, and his kindly reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bestead they sent him back to England to raise funds for an endowment. It happened that King's College (now

Digitized by Google

Columbia) in New York was in similar straits and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them," and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all churches, and succeeded in raising a very considerable endowment for each college.

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler, D.D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the provost's, collection, in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion. It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind; and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied."

A committee having been appointed to frame a fundamental *Resolve* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present

Digitized by Google

wide and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the church of England, or those dissenting from them (*in any future election to the principal offices mentioned in the aforesaid letter*), be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion, than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College in the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follow:

First. That the name of the institution be "*The University of Pennsylvania*," and that it be stationed in the city of Philadelphia.

Second. That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the university of Pennsylvania; and that the governor shall be president.

SECT. 2. *And be it further enacted*, That the said twenty-four persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance for ever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said university shall at all times be stationed in the city of Philadelphia.

Thus established, the University has advanced with the times, and now comprises the following departments: —

Digitized by Google

THE COLLEGE DEPARTMENT, including
- THE COURSE IN ARTS,
- THE TECHNICAL COURSES IN SCIENCE, (The Towne Scientific School),
- A COURSE IN PHILOSOPHY,
- THE COURSE IN FINANCE AND ECONOMY, (The Wharton School),
- THE COURSE IN MUSIC.

THE DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF LAW.
THE AUXILIARY DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF DENTISTRY.
THE DEPARTMENT OF PHILOSOPHY.
THE DEPARTMENT OF VETERINARY MEDICINE.
THE DEPARTMENT OF BIOLOGY.
THE DEPARTMENT OF PHYSICAL EDUCATION.

Digitized by Google

PROVOST OF THE UNIVERSITY,

WILLIAM PEPPER, M.D., LL.D.,

President *pro tempore* of the Board of Trustees.

TRUSTEES.

THE GOVERNOR OF PENNSYLVANIA, *ex-officio* President of the Board.
REV. HENRY J. MORTON, D.D.,
FREDERICK FRALEY, LL.D.,
REV. CHARLES W. SCHAEFFER, D.D.,
JOHN WELSH, LL.D.,
RT. REV. WILLIAM BACON STEVENS, D.D., LL.D.,
JOHN ASHHURST,
WILLIAM SELLERS,
REV. RICHARD NEWTON, D.D.,
J. VAUGHAN MERRICK,
FAIRMAN ROGERS,
RICHARD WOOD,
S. WEIR MITCHELL, M.D.,
JOSHUA B. LIPPINCOTT,
CHARLES C. HARRISON,
JAMES H. HUTCHINSON, M.D.,
REV. GEORGE DANA BOARDMAN, D.D.,
WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, LL.D.,
WHARTON BARKER,
SAMUEL DICKSON,
JOHN SCOTT,
JAMES MACALISTER,
JOHN C. SIMS, JR.,
HENRY H. HOUSTON.

REV. JESSE Y. BURK, Secretary, University.
WHARTON BARKER, Treasurer, 125 South Fourth-st.

Digitized by Google

CHAIRMEN OF STANDING COMMITTEES FOR THE YEAR 1885–6.

WAYS AND MEANS: . . . . . MR. WELSH, 304 Walnut-st.

BUILDINGS, ESTATES AND PROPERTY: MR. LIPPINCOTT, 715 Market-st.

LIBRARY: . . . . . DR. FURNESS, 222 West Washington Square.

DEPARTMENT OF ARTS: . . . . . MR. FRALEY, 1000 Walnut-st.

DEPARTMENT OF MEDICINE: . . . DR. MITCHELL, 1524 Walnut-st.

DEPARTMENT OF LAW: . . . . . MR. SCOTT, 3813 Chestnut-st.

DEPARTMENT OF SCIENCE: . . . . . MR. MERRICK, Roxboro'.

DEPARTMENT OF FINANCE AND ECONOMY: MR. BARKER, 28 S. Third-st.

DEPARTMENT OF VETERINARY MEDICINE: MR. LIPPINCOTT, 715 Market-st.

DEPARTMENT OF PHYSICAL EDUCATION: . . . MR. DICKSON, 32 S. Third-st.

DEPARTMENT OF BIOLOGY: . . . . . MR. MERRICK, Roxboro'.

Digitized by Google

OFFICERS.*

	Residence.
WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY.	1811 Spruce-st.
E. OTIS KENDALL, LL.D., VICE-PROVOST.	3826 Locust-st.
JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.	1302 Filbert-st.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.	1800 Spruce-st.
FRANCIS A. JACKSON, A.M., Professor of the *Latin Language and Literature*.	University.
E. OTIS KENDALL, LL.D., THOMAS A. SCOTT Professor of *Mathematics*.	3826 Locust-st.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology and Mining*.	1008 Clinton-st.
P. PEMBERTON MORRIS, A.M., Emeritus Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.	404 Locust-st.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics* and of the *Diseases of Women and Children*.	1331 Spruce-st.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.	3900 Spruce-st.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.	117 S. 20th-st.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy*, and *General Therapeutics*, and Clinical Professor of *Nervous Diseases*.	1925 Chestnut-st.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence*, including *Toxicology*.	3710 Walnut-st

* The names are given in the order of accession to office.

Digitized by Google

CHARLES J. STILLÉ, LL.D.,
Emeritus JOHN WELSH CENTENNIAL Professor of *History* and *English Literature*. 2201 St. James's Place.

OSWALD SEIDENSTICKER, PH.D. (Göttingen),
Professor of the *German Language and Literature*. 1016 Cherry-st.

JOHN G. R. McELROY, A.M.,
Professor of *Rhetoric* and the *English Language*. 115 S. 20th-st.

J. I. CLARK HARE, LL.D.,
Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, *Commercial*, and *Civil Law*. 118 S. 22d-st.

D. HAYES AGNEW, M.D., LL.D.,
JOHN RHEA BARTON Professor of *Surgery*, and Professor of *Clinical Surgery*. 1611 Chestnut-st.

REV. ROBERT E. THOMPSON, A.M.,
JOHN WELSH CENTENNIAL Professor of *History* and *English Literature*. Jenkintown, P.O.

FREDERICK A. GENTH, PH.D. (Marburg),
Professor of *Chemistry* and *Mineralogy*. University.

SAMUEL B. HOWELL, M.D.,
Professor of *Mineralogy* and *Geology*. 1513 Green-st.

GEORGE F. BARKER, M.D., PH.B.,
Professor of *Physics*. 3909 Locust-st.

E. COPPÉE MITCHELL, LL.D.,
Professor of the *Law of Real Estate* and *Conveyancing* and of *Equity Jurisprudence*. 518 Walnut-st.

LEWIS M. HAUPT, A.M., C.E.,
Professor of *Civil Engineering*. University.

WILLIAM PEPPER, M.D., LL.D.,
Professor of the *Theory and Practice of Medicine* and of *Clinical Medicine*. 1811 Spruce-st.

WILLIAM GOODELL, M.D.,
Professor of *Clinical Gynæcology*. 500 N. 20th-st.

WILLIAM F. NORRIS, M.D.,
Clinical Professor of *Diseases of the Eye*. 1526 Locust-st.

GEORGE STRAWBRIDGE, M.D.,
Clinical Professor of *Diseases of the Ear*. 1500 Walnut-st.

JAMES PARSONS, A.M.,
Professor of the Law of *Personal Relations* and *Personal Property*. 32 S. 3d-st.

THOMAS W. RICHARDS, A.M.,
Professor of *Drawing* and *Architecture*. 3332 Chestnut-st.

Digitized by Google

GEORGE A. KŒNIG, PH.D. (Heidelberg),
Assistant Professor of *Chemistry*. 3207 Summer-st.

SAMUEL P. SADTLER, PH.D. (Göttingen),
Assistant Professor of *Chemistry*. 204 N. 34th-st.

JAMES TYSON, M.D.,
Professor of *General Pathology* and *Morbid Anatomy*. 1506 Spruce-st.

LOUIS A. DUHRING, M.D.,
Clinical Professor of *Skin Diseases*. 1417 Spruce-st.

HUGH A. CLARKE,
Professor of the *Science of Music*. 223 S. 38th-st.

FREDERICK A. MUHLENBERG, D.D.,
Professor of the *Greek Language and Literature*. 4307 Walnut-st.

JOSEPH T. ROTHROCK, M.D., B.S.,
Professor of *Botany*. West Chester, Pa.

WILLIAM D. MARKS, PH.B., C.E.,
WHITNEY Professor of *Dynamical Engineering*. 4304 Walnut-st.

THEODORE G. WORMLEY, M.D., LL.D.,
Professor of *Chemistry* and *Toxicology*. University.

JOHN ASHHURST, JR., M.D.,
Professor of *Clinical Surgery*. 2000 W. De Lancey Place.

OTIS H. KENDALL, A.M.,
Assistant Professor of *Mathematics*. 3826 Locust-st.

JOSEPH G. RICHARDSON, M.D.,
Professor of *Hygiene*. 3238 Chestnut-st.

CHARLES J. ESSIG, M.D., D.D.S.,
Professor of *Mechanical Dentistry* and *Metallurgy*. 1700 Locust-st.

EDWIN T. DARBY, M.D., D.D.S.,
Professor of *Operative Dentistry* and *Dental Histology*. 4000 Chestnut-st.

ANDREW J. PARKER, M.D., PH.D.,
Professor of *Comparative Anatomy* and *Zoology*. 315 N. 9th-st.

MORTON W. EASTON, PH.D.,
Professor of *Comparative Philology*. 224 S. 43d-st.

JAMES TRUMAN, D.D.S.,
Professor of *Dental Pathology*, *Therapeutics*, and *Materia Medica*. 3249 Chestnut-st.

FREDERICK A. GENTH, JR., M.S.,
Assistant Professor of *Chemistry*. 4014 Chestnut-st.

ALBERT S. BOLLES, PH.D.,
Professor of *Mercantile Law* and *Practice*. Aldine Hotel.

RUSH SHIPPEN HUIDEKOPER, M.D., V.S. (Alfort),
Professor of *Veterinary Anatomy* and *Pathology*. 111 S. 20th-st.

Digitized by Google

EDMUND J. JAMES, PH.D. (Halle),
Professor of *Finance and Administration*. 204 S. 41st st.

JOHN BACH McMASTER, A.M.,
Professor of *American History*. University.

GEORGE TUCKER BISPHAM, A.M.,
Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*. 402 Walnut-st.

ROBERT MEADE SMITH, M.D.,
Professor of *Comparative Physiology*. 332 S. 21st-st.

HORACE JAYNE, M.D.,
Professor of *Vertebrate Morphology*. 1826 Chestnut-st.

BENJAMIN SHARP, M.D., PH.D. (Würzburg),
Professor of *Invertebrate Morphology*. University.

WILLIAM OSLER, M.D.,
Professor of *Clinical Medicine*. 131 S. 15th-st.

EDWARD T. BRUEN, M.D.,
Assistant Professor of *Physical Diagnosis*. 1814 Rittenhouse Square.

LOUIS STARR, M.D.,
Clinical Professor of *Diseases of Children*. 1922 Spruce-st.

WILLIAM L. ZUILL, M.D., D.V.S.,
Professor of *Surgical Pathology*. University.

REV. GEORGE S. FULLERTON, A.M., B.D.,
Adjunct Professor of *Intellectual and Moral Philosophy*. University.

J. WILLIAM WHITE, M.D.,
Director of *Physical Education*, Demonstrator of *Surgery*, and Assistant Surgeon in University Hospital. 222 S. 16th-st.

ROLAND G. CURTIN, M.D.,
Lecturer on *Physical Diagnosis*, and Asst. Physician in University Hospital. 22 S. 18th-st.

CHARLES K. MILLS, M.D.,
Lecturer on *Mental Diseases*. 113 S. 19th-st.

SAMUEL D. RISLEY, M.D.,
Instructor in *Ophthalmology*, and Ophth. Surgeon in University Hospital. 1630 Walnut-st.

DE FOREST WILLARD, M.D.,
Lecturer on *Orthopædic Surgery*. 1818 Chestnut-st.

ELLIOTT RICHARDSON, M.D.,
Lecturer on *Clinical and Operative Obstetrics*, and Demonstrator of *Operative Obstetrics*. 1829 Spruce-st.

ADOLPH W. MILLER, M.D.,
Lecturer on *Materia Medica and Pharmacy*, and Demonstrator of *Practical Pharmacy*. University.

Digitized by Google

JOHN MARSHALL, M.D., NAT.Sc.D. (Tübingen),
Demonstrator of *Practical Chemistry*. University.

WILLIAM BARTON HOPKINS, M.D.,
Assistant Demonstrator of *Surgery*. 2018 Spruce-st.

GEORGE A. PIERSOL, M.D.,
Demonstrator of *Normal Histology*. 1110 Spring Garden-st.

HENRY F. FORMAD, M.D.,
Demonstrator of *Pathological Histology* and of *Morbid Anatomy*, Lecturer on *Experimental Pathology*, and Librarian of the Stillé Medical Library. 3535 Locust-st.

WALTER M. L. ZIEGLER, M.D.,
Instructor in *Otology*, and Aural Surgeon in University Hospital. 2007 Columbia Ave.

CARL SEILER, M.D.,
Instructor in *Laryngology*. 1346 Spruce-st.

ALBERT L. A. TOBOLDT, M.D.,
Assistant Demonstrator of *Practical Pharmacy*. 207 Vine-st.

HARRY R. WHARTON, M.D.,
Demonstrator of *Clinical Surgery*, and Assistant Surgeon in University Hospital. 1405 Locust-st.

RICHARD H. HARTE, M.D.,
Demonstrator of *Osteology*, and Assistant Demonstrator of *Surgery and Anatomy*, and Assistant Surgeon in University Hospital. 332 S. 17th-st.

ROBERT HUEY, D.D.S.,
Lecturer on *Operative Dentistry*. 330 S. 15th-st.

WILLIAM DIEHL, D.D.S.,
Demonstrator of *Operative Dentistry*. 1513 Walnut-st.

JOHN B. DEAVER, M.D.,
Demonstrator of *Anatomy*. 1610 Vine-st.

FRANCIS X. DERCUM, M.D.,
Instructor in *Nervous Diseases*. 636 N. 8th-st.

THOMAS R. NEILSON, M.D.,
Assistant Demonstrator of *Anatomy* and *Surgery*, and Instructor in *Venereal Diseases*. 346 S. 15th-st.

EDMUND W. HOLMES, M.D.,
Assistant Demonstrator of *Anatomy*. 1523 Green-st.

EDWARD T. REICHERT, M.D.,
Demonstrator of *Experimental Physiology*, and Lecturer on *Physiology*. University.

JUDSON DALAND, M.D.,
Instructor in *Clinical Medicine*. 319 S. 18th-st.

Digitized by Google

WILLIAM A. EDWARDS, M.D.,
Instructor in *Clinical Medicine.* 1210 Spruce-st.

N. ARCHER RANDOLPH, M.D.,
Assistant Demonstrator of *Physiology*, and Instructor in *Physiology.* University.

EDWIN S. CRAWLEY, B.S.,
Instructor in *Civil Engineering.* University.

WILLIAM L. CAVE, D.D.S.,
Demonstrator of *Mechanical Dentistry.* 115 S. 17th-st.

J. JUDSON EDWARDS, D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry.* 38 N. 38th-st.

HENRY F. KELLER, B.S.,
Assistant in *Chemistry.* 257 N. 6th-st.

HENRY A. WASMUTH, E.M.,
Assistant in *Geology and Mining.* 3709 Woodland-Ave.

J. HENDRIE LLOYD, M.D.,
Instructor in *Electro-Therapeutics.* 200 S. 40th-st.

A. SYDNEY ROBERTS, M.D.,
Instructor in *Orthopædic Surgery.* 131 S. 15th-st.

J. P. CROZER GRIFFITH, M.D.,
Assistant Demonstrator of *Normal Histology.* 110 S. 18th-st.

GEORGE E. DE SCHWEINITZ, M.D.,
Prosector to the Professor of *Anatomy.* 1330 Spruce-st.

HENRY W. STELWAGON, M.D.,
Instructor in *Dermatology.* 223 S. 17th-st.

JAMES G. BARNWELL, A.M.,
Librarian. 327 N. 9th-st.

JOHN S. ELLIOTT, B.S.,
Assistant in *Civil Engineering.* University.

LOUIS DU PONT SYLE, A.B.,
Instructor in *English.* University.

EDWARD P. CHEYNEY, A.B., B.F.,
Instructor in *History.* N. E. cor. 41st and Ogden-st.

GOOLD H. BULL, Assistant Engineer U. S. N.,
Instructor in *Mechanical Engineering.* University.

ARTHUR W. GOODSPEED, B.A.,
Assistant in *Physics.* University.

JOSEPH W. NOBLE, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 1513 Walnut-st.

LUTHER E. GRAVES, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 219 S. 17th-st.

Digitized by Google

ALEXANDER GLASS, V.S.,
Demonstrator of *Veterinary Pharmacy.* 2006 Bainbridge-st

SAMUEL G. DIXON,
Assistant Demonstrator of *Physiology.* 107 S. 21st-st.

ROBERT P. ROBINS, M.D.,
Instructor in *Clinical Medicine.* 2024 Locust-st.

WILLIAM L. TAYLOR, M.D.,
Instructor in *Clinical Gynæcology.* University.

GWILLYM G. DAVIS, M.D.,
Assistant Demonstrator of *Surgery.* University.

CARL H. REED, M.D.,
Assistant Demonstrator of *Morbid Anatomy* and *Pathological Histology.* 1529 Arch-st.

GEORGE G. MILLIKEN, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 3614 Walnut-st.

CHARLES S. DOLLEY, M.D.,
Instructor in *General Biology.* University.

WILLIAM B. ROGERS, D.V.S.,
Demonstrator of *Veterinary Anatomy.* Westville, N. J.

HUGO A. RENNERT, B.S.,
Instructor in *French and German.* University.

LOUIS JACK, D.D.S.,
Lecturer on *Operative Dentistry.* University.

EDWARD MARTIN, M.D.,
Assistant Instructor of *Physical Education.* University.

JOHN B. WEBSTER,
Clerk to the College Faculty. University.

WM. H. SALVADOR,
Clerk to the Faculty of Medicine. University.

JOHN A. REIMOLD,
Clerk to the Faculty of Dentistry. University.

JOHN H. SALVADOR,
Clerk to the Faculty of Veterinary Medicine.

BARCELONA BASS,
Clerk to the Faculty of Biology.

Digitized by Google

COLLEGE DEPARTMENT.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY, and *ex-officio* President.

E. OTIS KENDALL, LL.D., VICE-PROVOST, *ex-officio* DEAN OF THE FACULTY, and THOMAS A. SCOTT Professor of *Mathematics*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.

FRANCIS A. JACKSON, A.M., SECRETARY, Professor of the *Latin Language and Literature*.

OSWALD SEIDENSTICKER, PH.D., Professor of the *German Language and Literature*.

JOHN G. R. McELROY, A.M., Professor of *Rhetoric* and *the English Language*.

J. I. CLARK HARE, LL.D., Professor of *Constitutional Law*.

REV. ROBERT E. THOMPSON, A.M., JOHN WELSH CENTENNIAL Professor of *History and English Literature*.

FREDERICK A. GENTH, PH.D., Professor of *Chemistry*.

GEORGE F. BARKER, PH.B., M.D., Professor of *Physics*.

LEWIS M. HAUPT, A.M., C.E., Professor of *Civil Engineering*.

THOMAS W. RICHARDS, A.M., Professor of *Drawing and Architecture*.

GEORGE A. KŒNIG, PH.D., Assistant Professor of *Chemistry*, and Acting Professor of *Geology and Mining*.

SAMUEL P. SADTLER, PH.D., Assistant Professor of *Chemistry*.

HUGH A. CLARKE, Professor of the *Science of Music*.

REV. FREDERICK A. MUHLENBERG, D.D., Professor of the *Greek Language and Literature*.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.

WILLIAM D. MARKS, PH.B., C.E., Whitney Professor of *Dynamical Engineering*.

OTIS H. KENDALL, A.M., PH.D., Assistant Professor of *Mathematics*.

ANDREW J. PARKER, M.D., PH.D., Professor of *Comparative Anatomy* and *Zoölogy*.

MORTON W. EASTON, PH.D., Professor of *Comparative Philology*, and Instructor in *French* and in *Elocution*.

Digitized by Google

FREDERICK A. GENTH, JR., M.S., Assistant Professor of *Chemistry.*
ALBERT S. BOLLES, PH.D., Professor of *Mercantile Law and Practice.*
EDMUND J. JAMES, PH.D., Professor of *Finance and Administration.*
JOHN B. McMASTER, A.M., Professor of *American History.*
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology.*
BENJAMIN SHARP, M.D., PH.D., Professor of *Invertebrate Morphology.*
REV. GEORGE S. FULLERTON, A.M., B.D., Adjunct Professor of *Intellectual and Moral Philosophy.*
J. WM. WHITE, M.D., Director of *Physical Education.*

JAMES G. BARNWELL, A.M., *Librarian.*

INSTRUCTORS.

N. ARCHER RANDOLPH, M.D., Instructor in *Physiology.*
EDWIN S. CRAWLEY, B.S., Instructor in *Civil Engineering.*
HENRY F. KELLER, B.S., Assistant in *Analytical Chemistry.*
HENRY A. WASMUTH, E.M., Assistant in *Geology.*
JOHN S. ELLIOTT, B.S., Assistant in *Civil Engineering.*
LOUIS DU PONT SYLE, A.B., Instructor in *English.*
ARTHUR W. GOODSPEED, A.B., Instructor in *Physics.*
EDWARD P. CHEYNEY, A.B., B.F., Instructor in *History.*
GOOLD H. BULL, Assistant Engineer U. S. N., Instructor in *Mechanical Engineering.*
HUGO A. RENNERT, B.S., Instructor in *French and German.*

FRANCIS A. JACKSON, *Secretary.*

UNDERGRADUATES.

POST SENIORS.

3. Enoch Jones Acker,	*Schuylkill P. O.*,	Chester Co.
3. Percy Ash,	3708 *Spruce-st.*,	Philadelphia.
1. William Henry Bower,	2000 *Spruce-st.*,	Riverton, N. J.
3. George Whitefield Chance,	2433 *Fairmount Ave.*,	Philadelphia.
1. George Howland Chase,	1938 *N. 12th-st.*,	do.
2. Samuel Williamson Cheyney,	*Cor. 41st & Ogden-st.*,	do.
3. Allen Brooks Cuthbert,		Beverly, N. J.
3. Valentine Sherman Doebler,	4010 *Pine-st.*,	Philadelphia.
3. John Stephens Durham,	1622 *Catharine-st.*,	do.
4. George Kingsbury Fischer,	729 *N. 6th-st.*,	do.
3. Stephen Harris,	5124 *Green-st.*,	Germantown.
2. John Lincoln Harvey,		Ridley Park, Del. Co., Pa.

Digitized by Google

2. Edwin Newberry Hawkins,	2143 *Mt. Vernon-st.*,	Philadelphia.
4. Herman Siegfried Hering,	112 *N. 12th-st.*,	do.
1. Herman Herzog, Jr.,	4101 *Pine-st.*,	do.
3. Thomas Hill Brinton Jacobs,		Exton, Chester Co., Pa.
3. Jerome Thomas Kelly,	*58th & Baltimore Ave.*,	Philadelphia.
4. Wilmer Francis Lubbe,		Conshohocken.
2. David Lincoln Luke,		Rockland, Del. Co.
3. John Gibson McCall,	3941 *Chestnut-st.*,	Philadelphia.
2. Marshall Rogers Pugh,		Doylestown.
4. Lino Francesco Rondinella,	1912 *Arch-st.*,	Philadelphia.
3. Samuel McMurray Smith,	4108 *Filbert-st.*,	do.
5. Morris Sutphen Solomon,		do.
4. Henry Szlapka,		Phœnixville.
4. Francis Thibault,	325 *S. 16th-st.*,	Philadelphia.
4. Herbert Coleman Whitaker,	324 *Market-st.*,	Camden, N. J.
2. William Schmœle Wolfe,	403 *N. 40th-st.*,	Philadelphia.

SENIORS.

Course in the Arts.

David Sands Brown Chew,	*Main & Johnson-sts.*,	Germantown.
James Burnet Crane,	2302 *Spruce-st.*,	Philadelphia.
George Christian Eisenhardt,	1319 *Hutchinson-st.*,	do.
William West Frazier, 3d,	250 *S. 18th-st.*,	do.
James Biddle Halsey,	3421 *Walnut-st.*,	do.
Robert Murray Hogg,	929 *N. Broad-st.*,	do.
John Chester Hyde, Jr.,	*Stockton & Academy*,	Trenton, N. J.
Edward Miller Jefferys,	3928 *Walnut-st.*,	Philadelphia.
Irvin Poley Knipe,		Norristown.
Albert William Manifold,	4507 *Worth-st.*,	Frankford.
George Petry,	638 *N. 17th-st.*,	Philadelphia.
Jacob Martin Rommel, Jr.,	1904 *Spring Garden*,	do.
Edwin Jaquett Sellers,	322 *S. 10th-st.*,	do.
Walter Moore Shaw,		Norristown.
Frederick Thibault,	325 *S. 16th-st.*,	Philadelphia.
Howard James Truman,	142 *N. 7th-st.*,	do.
Thomas Holmes Walker,	235 *N. 21st-st.*,	do.
George W. Wilgus,		Hatboro, Pa.
Charles Elmer Woodruff,	433 *Liberty-st.*,	Camden, N. J.
Samuel Megargee Wright,	126 *S. 16th-st.*,	Philadelphia.

Course in Science.

4. Edgar Augustus Alcott,		Mount Holly, N. J.
4. William Augustus Bigler,	118 *N. 12th-st.*,	Philadelphia.
2. Amos Peaslee Brown, Jr.,	*Fisher's Lane*,	Germantown.
1. Abram Trimble Eastwick,	*Wissahickon Station*,	Philadelphia.
3. William Salter Freeman,		Beverly, N. J.
4. Theodore Gould, Jr.,	723 *Erie-st.*,	Philadelphia.
4. Thomas Graham Grier,	633 *N. 40th-st.*,	do.
3. Morris Hacker,	116 *S. 22d-st.*,	do.

Digitized by Google

2. Enon Major Harris, Jr.,	58*th & Springfield Ave.*,	Philadelphia.
3. Charles Herman Haupt,	407 *N.* 32*d-st.*,	do.
3. Gerald Holsman,	2217 *St. James's Place*,	do.
3. Joseph Edward Horn,	3717 *Frankford Ave.*,	do.
3. Francis Emlen Hoskins,	1802 *Pine-st.*,	do.
4. Joseph David Israel,	1428 *Poplar-st.*,	do.
3. Harry Kauffman, Jr.,	3920 *Atlanta-st.*,	do.
2. James Harmer Knight,	1530 *Marshall-st.*,	do.
4. Leon Kraft,	1422 *Ridge Ave.*,	do.
1. Jacob Lychenheim,	1614 *N.* 10*th-st.*,	do.
4. Richard McCall,		West Chester, Pa.
2. Percy McGeorge,		Lower Merion.
3. Henry Jackson Mullen,	300 *N.* 40*th-st.*,	Philadelphia.
4. Geo. Gelb. Em. Neuber, A.B.,	1532 *Montgomery Ave.*,	do.
3. James Clarence Ogden,		Clifton Heights.
3. Edward Arnott Pearson,		Crum Lynne.
4. William Green Ridgway,	3411 *Walnut-st.*,	Philadelphia.
3. Henry Alexander Robb,	545 *N.* 5*th-st.*,	do.
4. Robert Lewis Rutter,	928 *Spruce-st.*,	do.
3. Harry Randolph Stoops,	17 *S.* 8*th-st.*,	do.
3. Earl Thomson,	308 *State-st.*,	Camden, N. J.
3. Henry Davis Todd, Jr.,	1624 *Spruce-st.*,	Philadelphia.
4. David Edward Tracy,		Conshohocken, Pa.
2. Alfred Weeks, Jr.,	4051 *Locust-st.*,	Philadelphia.
1. William Daniel Weikel,		Merch'tville, N. J.
2. Samuel Jennings White,	3329 *Powelton Ave.*,	Philadelphia.
3. John Williamson Ziegler,	636 *N.* 35*th-st.*,	do.

COURSE IN PHILOSOPHY.

George Quintard Horwitz,	1919 *Walnut-st.*,	Philadelphia.
Samuel Stryker Kneass,		do.
Charles Price Mercer,	1852 *Frankford Ave.*,	do.
William Campbell Posey,	1232 *Arch-st.*,	do.
Joseph Sailer, Jr.,	2039 *Spruce-st.*,	do.
Joseph Price Tunis,	2320 *De Lancey Place*,	do.
John Weiszgerber,	2234 *N.* 2*d-st.*,	do.
Charles Baeder Williams,	2018 *Green-st.*,	do.

COURSE IN WHARTON SCHOOL.

Gust. Adolphus Edward Kohler,	1339 *Parrish-st.*,	Philadelphia.

JUNIORS.

COURSE IN THE ARTS.

William Allen, Jr.,	820 *N.* 41*st-st.*,	Philadelphia.
David Werner Amram,	924 *New Market-st.*,	do.
William Sinclair Ashbrook,	3614 *Baring-st.*,	do.
John Ashhurst, 3d,	2000 *W. De Lancey Pl.*,	do.
Chauncey Ralston Baugh,	329 *S. Broad-st.*,	do.
Edgar French Brown,	3716 *Chestnut-st.*,	do.

Digitized by Google

Charles Tyler Cowperthwait,		Chestnut Hill.
Edwards Sanford Dunn,	725 *Pine-st.*,	Philadelphia.
John Sims Forbes,	1409 *Locust-st.*,	do.
George Harrison Frazier,	250 *S.* 18*th-st.*,	do.
Fred. Wm. Wilson Graham,	1528 *Spruce-st.*,	do.
John McArthur Harris,	5124 *Green-st.*,	Germantown.
Oliver Huckel,	*N. W. Cor. Penn & Allen*,	Frankford.
Joseph Siegmund Levin,	1217 *Franklin-st.*,	Philadelphia.
Walter Rodman Lincoln,	665 *N.* 11*th-st.*,	do.
Walter Biddle Lowry,	1517 *Carpenter-st.*,	do.
Christopher Magee, Jr.,	334 *S.* 16*th-st.*,	do.
Edward Alden Miller,	1309 *Pine-st.*,	do.
James Alan Montgomery,		West Chester, Pa.
William Romaine Newbold,		Shoemakert'n, Pa.
George Wharton Pepper,	1736 *Pine-st.*,	Philadelphia.
Francis John Pryor, Jr.,	1939 *South-st.*,	do.
Theodore Wood Reath,	1538 *Pine-st.*,	do.
Alexander Wilson Russell, Jr.,	3446 *Chestnut-st.*,	do.
Robert Bowen Salter,	2016 *Mt. Vernon-st.*,	do.
André William Séguin,	3715 *Locust-st.*,	do.
Henry Daniel Emanuel Siebott,	1723 *Ingersoll-st.*,	do.
James Somers Smith, Jr.,	212 *S.* 4*th-st.*,	do.
Witmer Stone,	*Fisher's Lane*,	Germantown.
George Flowers Stradling,		Hatboro, Pa.
Charles Cooper Townsend,		Overbrook, Pa.

COURSE IN SCIENCE.

4. Henry Clay Adams,	1921 *Green-st.*,	Philadelphia.
3. Louis Eugene Amet,	127 *N.* 21*st-st.*,	do.
4. Henry Price Ball,	4533 *Frankford Ave.*,	do.
4. Charles Thos. Parry Brunner,	2034 *Arch-st.*,	do.
1. Daniel Edwin Brunner, (A.B.)	101 *S.* 34*th-st.*,	do.
1. Walter Nadal Boyer,	1829 *N. Broad-st.*,	do.
4. Frederick Colton Clarke,	134 *N.* 21*st-st.*,	do.
4. Albert Rowland Cline,	3718 *Haverford-st.*,	do.
2. Thomas Darling Drown,		Weldon, Pa.
4. Edgar Pardee Earle,		Chestnut Hill.
2. Joseph Sketchley Elverson,	437 *Stevens-st.*,	Camden, N. J.
2. Loudon Engle,	27 *Wyoming-st.*,	Philadelphia.
1. Lee Käufer Frankel,	1315 *Marshall-st.*,	do.
3. Silas Godfrey Griffith,	1026 *W. Dauphin-st.*,	do.
4. William Hahman,	*Harrowgate Lane*,	do.
3. George Bacon Hancock,	3216 *Baring-st.*,	do.
4. Walter Eugene Harrington,	2131 *N.* 12*th-st.*,	do.
1. John Dawson Hawkins,	2143 *Mt. Vernon-st.*,	do.
1. John Julius Hovey,		Beverly, N. J.
2. Frank James Keeley,	3815 *Spruce-st.*,	Philadelphia.
3. Edward Fulbister Kenney,	4802 *Fairmount Ave.*,	do.
1. Jno. Philip Krecker,	1327 *Marshall-st.*,	do.
3. Theophilus Kuelling,	625 *N.* 36*th-st.*,	do.
3. Thomas Love Latta,	3717 *Hamilton-st.*,	do.

Digitized by Google

5. Charles Robert Lee,		Bryn Mawr, Pa.
4. Leighton Lee,	*Manheim-st.*,	Germantown.
3. William McLean,	2000 *Wallace-st.*,	Philadelphia.
2. James Francis Magee, Jr.,	114 *N. 17th-st.*,	do.
3. Albert Lee Magilton,	713 *Florida-st.*,	Philadelphia.
3. George Ledlie Martin,	1316 *Catharine-st.*,	do.
1. Levis Passmore Newlin,	1730 *Catharine-st.*,	do.
4. William Byrd Page,	281 *S. 4th-st.*,	do.
3. John Grubb Parke, Jr.,	403 *N. 33d-st.*,	do.
4. David Pepper, Jr.,	1827 *Spruce-st.*,	do.
3. Andrew Perry Redifer,	135 *Race-st.*,	do.
5. Howard Smith Richards,	1512 *Otis-st.*,	do.
1. Robert Riddle,	4722 *Green-st.*,	do.
3. Henry Hunter Seyfert,	1735 *Park Ave.*,	do.
4. Franklin Sheble,	1709 *Mt. Vernon-st.*,	do.
3. James Reeves Siddall,	818 *N. 40th-st.*,	do.
4. Alfred Henry Smith,	1416 *Bouvier-st.*,	do.
4. William Poultney Smith, Jr.,		Abington, Pa.
2. Milton Valentine Snyder,	515 *N. 38th-st.*,	Philadelphia.
3. Theodore Nelson Spencer,	942 *Franklin-st.*,	do.
2. Daniel Morrell Stackhouse,		Wallingford, Pa.
3. Horace Ambrose Stever, Jr.,	1718 *Cadwallader-st.*,	Philadelphia.
3. Joseph Christian Wagner,	1539 *N. 12th-st.*,	do.
3. John Wallace Weaver,	1909 *N. 7th-st.*,	do.
4. Alan Dean Whittaker,	*Chestnut Hill*,	do.

COURSE IN PHILOSOPHY.

George Fetterolf,	*Girard College*,	Philadelphia.
Robert Stephen Maison,	6901 *Woodland Ave.*,	do.
Hyland Clark Murphey,	5134 *Lancaster Ave.*,	do.
Frank Remi Remont,	4204 *Viola-st.*,	do.

COURSE IN THE WHARTON SCHOOL.

Forrest Murrell Anderson,	745 *S. 9th-st.*,	Philadelphia.
William Francis Audenried,	1823 *Walnut-st.*,	do.
Edward Charles Batchelor,	886 *N. 6th-st.*,	do.
Charles Seligman Bernheimer,	1804 *Franklin-st.*,	do.
Joseph Spencer Brock,	2025 *Wallace-st.*,	do.
Francis Asbury Bruner,	743 *N. 40th-st.*,	do.
Clarence William Dolan,	1809 *Walnut-st.*,	do.
Joseph Allison Eyster, Jr.,	236 *W. Logan Sq.*,	do.
Francis Edmund Green,	2125 *Spruce-st.*,	do.
Clement Acton Griscom, Jr.,	1018 *Spruce-st.*,	do.
Crawford Dawes Hening,	330 *S. 21st-st.*,	do.
Samuel Frederick Houston,	*Tulpehocken-st.*,	do.
Hew Brydon MacLean,	277 *S. 4th-st.*,	do.
William Tennent Moffly,	*Wayne & Walnut Lane*,	do.
Frank Wenrich Sheafer,	3900 *Walnut-st.*,	do.
Henry Naglee Smaltz,	801 *N. 6th-st.*,	do.
Edward Lowber Welsh,	1420 *Spruce-st.*,	do.

Digitized by Google

SOPHOMORES.

Course in the Arts.

Frazer Ashhurst,	1830 *Spruce-st.*,	Philadelphia.
William Lyttleton Barclay,	1816 *Pine-st.*,	do.
Richard Henry Bayard Bowie,	1710 *Walnut-st.*,	do.
George Clay Bowker,	4375 *Main-st.*,	Manayunk.
Chandler Root Bugbee,	3332 *Walnut-st.*,	Philadelphia.
John Willits Campion,	404 *Franklin-st.*,	do.
Harrison Koons Caner,	315 *S.* 17*th-st.*,	do.
James Haworth,	37 *Wyoming-st.*,	do.
Walter Budd Keen,	3913 *Chestnut-st.*,	do.
Theodore William Kretschmann,	5880 *Main-st.*,	Germantown.
Stuart Douglas Lansing,		Burlington, N. J.
James Barton Longacre,	1337 *Spruce-st.*,	Philadelphia.
William Wilson Longstreth,	2013 *Chestnut-st.*,	do.
Ernest de Fremery Miel,	515 *S.* 41*st-st.*,	do.
Samuel Geo. Morton Montgomery,	*Ardrossan*,	West Chester, Pa.
William Salter Porter,		Media, Pa.
James Martin Raker,	2937 *Richmond-st.*,	Philadelphia.
Horace Clark Richards,	3332 *Chestnut-st.*,	do.
John David Samuel,	1809 *Pine-st.*,	do.
Lawrence Savery Smith,	1419 *Walnut-st.*,	do.
John Duncan Ernest Spaeth,	1615 *Girard Ave.*,	do.
Carrow Thibault,	325 *S.* 16*th-st.*,	do.
Lightner Witmer,	1814 *Franklin-st.*,	do.
Carleton Bicknel Zeilin,	*Tulpehocken-st.*,	Germantown.

Course in Science.

William Kennedy Barclay,	4044 *Chestnut-st.*,	Philadelphia.
Heston Bates,	1900 *Tioga-st.*,	do.
James Cornell Biddle, Jr.,	1420 *Walnut-st.*,	do.
George Brinton,	1423 *Spruce-st.*,	do.
Henry Bennett Buck,	3600 *Chestnut-st.*,	do.
Eugene Delano Cleaver,		Berwyn, Pa.
Francis Cadwallader Dade, Jr.,	525 *S.* 41*st-st.*,	Philadelphia.
Julian Hiland Dewey,	1537 *Centennial Ave.*,	do.
Harry John Doyle,	3421 *Race-st.*,	do.
Joseph Hildeburn Gumbes,		Germantown.
George Brodhead Harris,	*School Lane*,	do.
Franklin Derstine Hartzell,	3306 *Walnut-st.*,	Philadelphia.
Manton Eckfeldt Hibbs,	527 *N.* 18*th-st.*,	do.
Oliver Hough,	325 *S.* 16*th-st.*,	do.
Franklin Davenport Howell, Jr.,		Ridley Park, Pa.
Frederick Mervin Ives,	3709 *Woodland Ave.*,	Philadelphia.
Edgar Francis Jordan,	4226 *Walnut-st.*,	do.
Herbert Moses Kaufmann,	1325 *Franklin-st.*,	do.
Edwin Robert Keller.	257 *N.* 6*th-st.*,	do.
William Kendall Leonard,		Piqua, O.
Adam Keith Luke,		Rockland, Del.
Howard Mellor,	460 *Marshall-st.*,	Philadelphia.
David Pacheco,	1310 *Walnut-st.*,	do.

Digitized by Google

William Thompson Plummer,	1527 *S. Broad-st.*,	Philadelphia.
Albert Layton Register,	120 *N. 34th-st.*,	do.
Croft Register,	120 *N. 34th-st.*,	do.
Charles Everett Ross,	347 *Kerlin-st.*,	Chester, Pa.
John Richard Savage, Jr.,	*W. Orthodox-st.*,	Frankford.
William James Smith,	868 *Preston-st.*,	Philadelphia.
Isaac Starr, Jr.,	2203 *Trinity Place*,	do.
William Caner Wiedersheim,	315 *S. 17th-st.*,	do.
Edward Hand Williamson, Jr.,	3321 *Walnut-st.*,	do.
Maurice Davidson Wilt,	1417 *N. 15th-st.*,	do.

FRESHMEN.

Course in the Arts.

William Wayne Ashhurst,	*20th & De Lancey Pl.*,	Philadelphia.
Frederic Robeson Baker,	1414 *Arch-st.*,	do.
William Alexander Bell,	717 *S. 10th-st.*,	do.
Joseph Warren Coulston, Jr.,	1908 *Spring Garden*,	do.
Leon Symonety Dexter,	1018 *Walnut-st.*,	do.
Conway Dillingham,		West Chester, Pa.
Sherborne William Dougherty,	1435 *Girard Ave.*,	Philadelphia.
William Innes Forbes,	1409 *Locust-st.*,	do.
Charles Harrison Frazier,	101 *S. Front-st.*,	do.
Dallet Fuguet,	1128 *Spruce-st.*,	do.
Samuel Moore Hepburn,	3256 *Chestnut-st.*,	do.
Robert Carmer Hill,	129 *N. 18th-st.*,	do.
Edwin Isaac Hyneman,	1015 *Green-st.*,	do.
Edmund Theophilus Kuendig,	118 *N. 34th-st.*,	do.
Charles King Lennig,		Andalusia, Pa.
Dickinson Sergeant Miller,	1309 *Pine-st.*,	Philadelphia.
James Clayton Mitchell,	1716 *N. 16th-st.*,	do.
Arthur Rich. Harcourt Morrow,	1520 *S. 16th-st.*,	do.
De Lancey Verplanck Newlin,	1018 *Clinton-st.*,	do.
Preston Ware Orem,	1241 *N. 15th-st.*,	do.
Rufus Palen,	44 *Harvey-st.*,	Germantown.
Charles Peabody,	*Wayne & Walnut Lane*,	do.
Elliston Joseph Perot,	5103 *Germant'n Ave.*,	Philadelphia.
David Bowen Salter,	2016 *Mt. Vernon-st.*,	do.
Lloyd Mifflin Scott,		Howelville, Pa.
Walter Scott,	3808 *Chestnut-st.*,	Philadelphia.
Franklin Nelson Strader,	*Wissahickon*,	do.
Edmund Carter Taylor,	2129 *Pine-st.*,	do.
William Macpherson Wiltbank,	1813 *De Lancey Pl.*,	do.
William Moodie Yeomans,	1948 *N. Broad-st.*,	do.

Course in Science.

Franklin Bache,	*Cor. 40th & Pine-sts.*,	Philadelphia.
William Penn Beishlag,	4911 *Aspen-st.*,	do.
Timothy Raymond Beyer,	4835 *Green-st.*,	Germantown.
Herbert Hart Boyd,	2223 *Spruce-st.*,	Philadelphia.
George Brooke, Jr.,		Birdsboro, Pa.
Oscar Pearl Chamberlain,	3923 *Aspen-st.*,	Philadelphia.

Digitized by Google

Howard Crawley,		Haddonfield, N. J.
Francis Macomb Cresson,		Oaks, Pa.
Christian Frederic Fisher,	515 *Green-st.*,	Philadelphia.
Lawrence Brown Fonda,	1807 *N. Logan Sq.*,	do.
William Guggenheim,	1420 *N. 16th-st.*,	do.
George Henderson,	1221 *Arch-st.*,	do.
William Barklie Henry,	2200 *St. James's Pl.*,	do.
Shelton Adams Hibbs,	527 *N. 18th-st.*,	do.
George Hammeken Hill,	231 *S. 42d-st.*,	do.
Thomas Wilkins Hulme,		Mount Holly, N. J.
Charles Peter B. Jefferys, Jr.,	3928 *Walnut-st.*,	Philadelphia.
Rudolph Howard Klauder,	2208 *Venango-st.*,	do.
Edward Christman Knight,	*Clapier-st.*,	Germantown.
Samuel McCune Lindsay,	3912 *Chestnut-st.*,	Philadelphia.
William McClellan Menah,	1517 *South-st.*,	do.
August Appleton Miller,	623 *N. 13th-st.*,	do.
Benjamin Rowland Milnes,	1821 *Wallace-st.*,	do.
Edward Warloch Mumford,	1401 *N. 17th-st.*,	do.
William Albert Paris,	1907 *Green-st.*,	do.
Edward Asa Partridge,	1738 *Sydenham-st.*,	do.
William Ervin Penington,	2020 *Mt. Vernon-st.*,	do.
Walter Phillips,	450 *Marshall-st.*,	do.
Thomas Robinson Reaney,	200 *S. 42d-st.*,	do.
Albert Haseltine Smith,		Abington, Pa.
Robert Stulb,	506 *N. 4th-st.*,	Philadelphia.
Solomon Teller,	903 *N. 8th-st.*,	do.
Archibald Grahm Thomson,	1426 *Walnut-st.*,	do.
Frederic William Van Buskirk,		Pottstown, Pa.
Selden Lord Walkley,	1813 *Green-st.*,	Philadelphia.
Nathan Young Worrall,	2005 *Mt. Vernon-st.*,	do.
Archibald Wright,	1804 *Race-st.*,	do.

COURSE IN PHILOSOPHY.

George Dana Boardman Darby,	4000 *Chestnut-st.*,	Philadelphia.
Charles Barton Keen,	3913 *Chestnut-st.*,	do.

THE COURSE IN MUSIC.

SECOND YEAR.

Lillie Crankshaw,	73 *Sellers-st.*,	Frankford.
Lilian F. Glenn,	*40th & Baltimore Ave.*,	Philadelphia.
William F. Smith,	870 *Marshall-st.*,	do.
Frank Ware,		do.
Marianne E. White,	1614 *Chestnut-st.*,	do.
Wallace W. Richards,		Allentown, Pa.

FIRST YEAR.

Ella Harned,	4027 *Walnut-st.*,	Philadelphia.
Robert N. Keely, Jr., M.D.,	228 *S. 9th-st.*,	do.
Emma Whiteley,	715 *N. 44th-st.*,	do.
Evor Williams,		Coaldale, Pa.
Sara Wilton,	674 *N. 39th-st.*,	Philadelphia.
Annie Wyckoff,		do.

Digitized by Google

SPECIAL STUDENTS.

COURSE IN SCIENCE.

1. Wm. Colladay Robinson, Jr.,	2050 *Cherry-st.*,	Philadelphia.
3. Paul Thompson,		Beverly, N. J.
3. James Coxey Travilla,	3701 *Haverford Ave.*,	Philadelphia.
3. T. Sydenham Reed Flickwir,	226 *German-st.*,	do.
5. William Davenport Goforth,		Chelten Hills.
1. Louis Joseph Mátos,	3943 *Fairmount Ave.*,	Philadelphia.
3. Charles Condit Clifford,	*Frankford Arsenal*,	do.
3. William Warner Hill,	1537 *N. 8th-st.*,	do.
3. William George Houston,	814 *N. 21st-st.*,	do.
1. Bradford Knight,	4000 *Pine-st.*,	do.
3. William Henry Law,	1639 *Franklin-st.*,	do.
3. Robert Samuel McCleister,	2218 *Pine-st.*,	do.
4. William Vincent McGrath,	1810 *Spring Garden-st.*,	do.
1. Francis William Ralston, Jr.,	233 *S. 13th-st.*,	do.
1. Andrew Frazer Stevens, Jr.,	1345 *Lombard-st.*,	do.
1. John William Thomas,		Overbrook, Pa.
1. Richard Albert Tilghman, Jr.,	321 *S. 11th-st.*,	Philadelphia.

PARTIAL STUDENTS.

COURSE IN THE ARTS.

Edmund Austin Stewardson,	*Chestnut Hill*,	Philadelphia.
William Clarence Arrison,	33 *E. Orthodox-st.*,	Frankford.
Lucien Hugh Alexander,	1935 *Arch-st.*,	Philadelphia.
Charles Newton Clement Brown,	2119 *Mt. Vernon-st.*,	do.
Matthew James Hyndman,	1529 *N. 2d-st.*,	do.
James Hall Oliver,	1031 *Arch-st.*,	do.
William Morrill Rumney,	*Wayne & Harvey-sts.*,	Germantown.
Thomas Mellor Tyson,	1506 *Spruce-st.*,	Philadelphia.

COURSE IN SCIENCE.

Crawford Coates,	4302 *Spruce-st.*,	Philadelphia.
Frank Herron Carothers,	3444 *Sansom-st.*,	San Antonio, Tex.
Lewis Crozer Lewis,		Chester, Pa.
Paul Farnum,		Media, Pa.
William Edwin Gaunt, Jr.,		Paulsboro, N. J.
Tamio Hayashi,		Tokio, Japan.
Dion M. Martinez, Jr.,	112 *Rittenhouse-st.*,	Germantown.
Ellis Paxson Oberholtzer,		Norristown, Pa.
Francis Hermann Bohlen,	1510 *Walnut-st.*,	Philadelphia.

COURSE IN PHILOSOPHY.

Milton J. Greenman,	202 *S. 41st-st.*,	Milton, Pa.
Edward H. Hance, Jr.,		Germantown,
William Homes Salter,	3256 *Chestnut-st.*,	Philadelphia.
George Sinnamon,		do.
Marcus A. Weems,		Columbia, Tex.
Richard Wilson,	2037 *Pine-st.*,	Philadelphia.

Digitized by Google

COURSE IN WHARTON SCHOOL.

George J. Hopkins, Jr.,	3603 *Spring Garden-st.*,	Philadelphia.
William Paul Martin,	3827 *Spring Garden-st.*,	do.
William Burton Pratt,		Milford, Del.
Leonard Morton Prince,	204 *S. 41st-st.*,	Philadelphia.
Miles Tucker,	1213 *Locust-st.*,	do.
William Townsend Wright,	3818 *Chestnut-st.*,	do.
Norton Buel Young,	*Chestnut Hill*,	do.

FELLOWS IN THE WHARTON SCHOOL.

James Collins Jones, Ph.B., (University of Pa.)	American History.
Frank N. Thorpe, Ph.D., (Syracuse)	Political Science.

SUMMARY OF COLLEGE DEPARTMENT.

	Arts.	Science.	Philosophy.	Finance.	Music.	Totals.
Fellows,	—	—	—	2	—	2
Post-Seniors,	—	28	—	—	—	28
Seniors,	20	35	8	1	6	70
Juniors,	31	49	4	17	6	107
Sophomores,	24	33	—	—	—	57
Freshmen,	30	37	2	—	—	69
Special Students,	—	17	—	—	—	17
Partial Students,	8	9	6	7	—	30
Totals,	113	208	20	27	12	380

The College Faculty, comprising the respective Faculties, conducts the following Courses of study: the Course in Arts, the Courses in the Towne Scientific School, the Course in the Wharton School, a Course in Philosophy for Undergraduates, and the Course in Music.

These courses permit a student to take, in the Freshman and Sophomore years, either the classical or the modern languages, with English, History, Mathematics, etc., and to elect at the close of the Sophomore Year, between the Courses in Arts, Philosophy, Finance and Economy; and any one of the five Technical Courses in the Towne Scientific School.

The Degree of *Bachelor of Arts* (*A.B.*) is given on graduation not only to students in the Department of Arts, but also to students in the Wharton School, and in The Course of Philosophy for Undergraduates, who have passed the first two years of the Department of Arts.

The Degree of *Bachelor of Science* (*B.S.*) is given on graduation to the students in the Towne Scientific School.

The Degree of *Bachelor of Philosophy* (*Ph.B.*) is given on graduation to students who have pursued the full Course of the Wharton School, and also to those who, graduating in this School, may have passed the Freshman and Sophomore Years in the Towne Scientific School.

Digitized by Google

PUBLIC LECTURES.

The following courses of Lectures given in this Department are open to the public:—

On German Literature, by Professor SEIDENSTICKER.

On the Older English Classics, by Professor MCELROY.*

On Social Science, by Professor THOMPSON.

On Physics and Astronomical Physics, by Professor BARKER.

On Inorganic and Organic Chemistry, by Professor SADTLER.

On Goethe and his works, by Professor JAMES.

On the French Language and Literature, by A. N. VAN DAELL, LL.D.

On Semitic Languages, by MORRIS JASTROW, PH.D.

Instruction in Analytical Chemistry, including practical work in the laboratory, under Professor GENTH.

The lectures, except those by Dr. Van Daell, and Dr. Jastrow, begin about February 1st. The fee for each course is five dollars; for the instruction in Analytical Chemistry, two hundred dollars a year.

Application for admission or for further information respecting this instruction may be made to the Dean, or to the Secretary, of any of the Faculties.

FEES.

For College fees, Expenses, Boarding, etc., see page 139.

SCHOLARSHIPS.

I. THE PENN SCHOLARSHIPS, two in number, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege reserved by Thomas Penn, Proprietary of Pennsylvania.

II. Certain Free Scholarships (about five in each class) are granted to deserving and needy students in this Department, under the following regulations:

Each candidate must present written testimonials, as to their deserts and needs, to the Dean of the Faculty, at or before the entrance-examinations in June or September. He must pass these examinations, or, in case he is already in the classes, the annual examinations; and is then recommended for admission to the committee of the Board of Trustees. The scholarships are granted for one year only.

III. THE PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under a contract with the City of Philadelphia, Fifty Free Scholarships have been permanently established in the University for the benefit of pupils from the Public Schools of the city. The candidates for these scholarships are sent by the Board of Public Education to the examinations for admission, in

* This course consists chiefly of Readings, with critical commentary.

Digitized by Google

June. They are examined at the same hours and on the same subjects as other candidates, but not necessarily on the same papers. The scholarships, according to the number of vacancies, are bestowed upon those who reach the highest grade in their examination, provided that grade be at least sixty-five per cent.

Of these, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, and the SAMUEL V. MERRICK SCHOLARSHIP have been endowed.

IV. The object of the income of the BLOOMFIELD MOORE FUND is to enable women (not exceeding six in any year) who are teaching, or who propose to teach, to receive free instruction in all departments to which women are admitted.

ANNUAL EXAMINATIONS

For promotion are held in January and June; for degrees, in May. At the end of each term, students who attain a certain standing are classed as "Distinguished." Students whose term-averages show them to be deficient in any of their studies, are conditionally attached to their class, until the deficiency has been fully made up. For persistent neglect of study, great irregularity of attendance, or inability to keep up with the class, students are dropped from the rolls.

PRIZES FOR THIS YEAR.

I. THE FACULTY PRIZES:

1. A prize of twenty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Junior Class. Subject: *A Criticism of Locke's Theory of Perception.*

2. A prize of twenty dollars for the best examination on the *Oration of Æschines against Ctesiphon* by the members of the Junior Class.

3. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents. The examination will be on *Arnold's Greek Prose Composition*, from the Relative to the end of the book.

4. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the Voluntary Junior Class.

5. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Union of Scotland with England.*

6. A prize of twenty dollars for the best Essay by a member of the Junior Class. Subject: *Nathaniel Hawthorne.*

7. A prize of fifteen dollars for the best Declamation by a member of the Sophomore Class.

8. A first prize of fifteen dollars, and a second prize of ten dollars, for

the best special examinations in the Elements of Latin Prose Composition, by Freshmen on entering College. The examinations must reach a satisfactory standard of excellence. In 1886, they will be upon the first fifty-five exercises in *Arnold's Latin Prose Composition.* Certificates will be presented to *all* competitors whose examinations reach a satisfactory standard.

9. Two prizes of the same value as those offered for Latin Prose Composition for the best special examinations in Greek Prose Composition by Freshmen on entering College. In 1886, the examinations will be on *Jones's Greek Exercises,* with the Accents.

10. A prize of twenty dollars to a member of the Scientific Classes for improvement in Drawing, and general good conduct and application.

II. THE HENRY REED PRIZE, founded by the Alumni of the University, for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a Diploma of Merit. The Essay must be handed to the Dean before the first day of May. Subject: In Professor Reed's Lecture on the reign of Henry the Sixth is the following:—"Jeanne Darc is now a heroine to Englishmen no less than to Frenchmen, and indeed a Christian heroine to all Christendom. . . How it was that the thought came into her soul that *she* was to be an instrument to save her country and her king, no history can tell, no philosophy explain; and we must fain content ourselves, I suppose, with the poor theory that it was an enthusiasm—political and religious enthusiasm combined, and working on an ardent imagination and a lofty spirit." (Examine Articles in the *Revue des Deux Mondes,* 1st May, and 1st June, 1885; Lord Mahon's *Essay;* Southey's *Poem,* and Notes; Schiller's *Jungfrau von Orleans;* Michelet on *Jeanne Darc;* Henri Martin's *Jeanne Darc;* DeQuincy; Encyclopædia Brittanica; Larousse's *Dictionnaire.*)

III. THE SOCIETY OF THE ALUMNI PRIZES:—

1. A prize for the best Latin Essay, by a member of the graduating class. It entitles the successful competitor to one year's interest on nine hundred dollars. The essays must be handed to the Dean by the first day of May, for transmission to a Committee of Examiners appointed by the Society.

2. A prize for the best Original Declamation by a member of the Junior Class. It entitles the successful competitor to one year's interest on three hundred dollars.

IV. A prize, founded by HENRY LA BARRE JAYNE, of the Class of 1879, for the best English Composition by a member of the Freshman Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *John Quincy Adams.*

Digitized by Google

V. THE JOSEPH WARNER YARDLEY PRIZE, founded by the Class of 1877, in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars, and to an accompanying Diploma of Merit. Subject: *Socialism.*

VI. A prize founded by D. VAN NOSTRAND, Esq., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholorship. It consists of certain technical works.

SOCIETIES.

The PHILOMATHEAN (Literary) SOCIETY, founded in 1813, holds meetings weekly during the college year, in its rooms at the University. All undergraduates of the College Department are eligible to membership. The order of exercises includes orations, essays, and a debate, besides the usual general business, which affords excellent practice in the principles of parliamentary law. A large and valuable library is owned by the Society.

The SCIENTIFIC SOCIETY holds weekly meetings at its rooms in the University throughout the college year. All undergraduates of the University are eligible to membership. Scientific essays are read, discussions are held, with a general comparison of observations and experiments. Besides a considerable scientific library, large collections of minerals, fossils, ornithological specimens, and other objects of scientific interest are owned by the Society. A course of lectures, under the management of the Society, is delivered annually.

THE COURSE IN ARTS.

ENTRANCE EXAMINATION.

For the FRESHMAN CLASS, candidates are examined in—

GREEK.—Greek Grammar. Arnold's *Greek Prose Composition* (*to the end of Exercise* 24). Xenophon (*Four Books of the Anabasis*). Homer (*First three Books of the Iliad*).

LATIN.—Latin Grammar. Cæsar (*Three Books of the Gallic War*). Virgil (*Six Books of the Æneid*). Cicero (*Five Orations*). Arnold's *Latin Prose Composition* (*to the end of Exercise* 20).

ENGLISH.—Grammar. (Abbott's *How to Parse* or Whitney's *Essentials of English Grammar* indicates the amount required.) Abbott's *How to Write Clearly* (first sixty-three pages). Composition. (An essay on a subject to be taken from the last-named of the following books, all of which must have been read by each candidate, viz.: Macaulay's *History of England*, Chaps. VII. to XII. (inclusive), Hawthorne's *Marble Faun*, Froude's *Essay on Education* (*Short Studies*, 2d Series), and Scott's *Marmion.*

Digitized by Google

The subject of composition in 1887 will be taken from the last-named of the following works, all of which must have been read by each candidate, viz.: Froude's *Essay on Education* (*Short Studies*, 2d Series); Scott's *Marmion;* Alexander Smith's *On the Writing of Essays* and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210); and Kingsley's *Hereward, The Last of the English.*

GEOGRAPHY.—Ancient and Modern Geography. (Mitchel's *New Ancient Geography* and *Ancient Atlas* are recommended.)

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Higginson, Scudder, or Johnston is suggested.)

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane Geometry.

For ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes.

The examinations are held in June and September. Circulars stating the days and the subjects of examination for each day can be had, after April 1st, on application to Mr. J. B. WEBSTER, Clerk to the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

GREEK.—Xenophon's *Hellenics.* Æschylus. Arnold's Greek Prose Composition, completed.

LATIN.—Selections from Livy, and Horace's Satires.

ENGLISH.—Prose Composition (Abbott's *How to Write Clearly*). Lectures, with Illustrative Readings from an English prose writer.

HISTORY.—Freeman's *General Sketch of History.*

MATHEMATICS.—Newcomb's *Algebra*, Chauvenet's *Geometry.* Wentworth's *Trigonometry.*

SOPHOMORE CLASS.

GREEK.—Thucydides (*Sicilian Expedition*). Euripides or Aristophanes. Greek Composition.

LATIN.—Tacitus (*Agricola, Germania*, or *Annals*). Cicero (*De Senectute* or *De Officiis*). Horace (*Selected Odes*).

ENGLISH.—McElroy's *Structure of English Prose.* Lounsbury's *English Language.* Compositions and Declamations.

MATHEMATICS.—Wentworth's *Plane and Spherical Trigonometry*, with applications. Bowser's *Analytical Geometry.*

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic and Organic Chemistry (*Experimental Lectures, with Examinations*).

GERMAN.—(During the Second Term) Whitney's *Grammar* and *Reader.*

Digitized by Google

JUNIOR CLASS.

REQUIRED,—

LOGIC.—Jevons's *Lessons in Logic;* Ethics, Whewell's *Elements;* Murray's *Outlines of Hamilton's Philosophy;* Lectures.

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.*)

ENGLISH.—Compositions and Declamations.

HISTORY.—History of English Literature.

ELECTIVE,*—

GREEK.—Sophocles. Lysias or Isocrates. Theocritus or Pindar.

LATIN.—Selections from Juvenal. Cicero (*De Officiis, De Finibus,* or *De Amicitia*). Horace (*Epistles*). Reading at Sight.

PURE MATHEMATICS.—Differential Calculus. Lectures on Higher Algebra.

GERMAN.—Whitney's *German Grammar.* Schiller's *Maria Stuart.* Lessing's *Minna von Barnhelm.*

FRENCH.—Corneille and Racine.

HISTORY.—Johnston's *American Politics* (with a critical study of Pamphlets and Political Documents).

SENIOR CLASS.

REQUIRED,—

PHILOSOPHY.—Berkeley's *Principles annotated.* Studies in the History of Philosophy. Butler's *Analogy.* Lectures.

ASTRONOMY.—Newcomb's Astronomy.

HISTORY.—Lectures on the Philosophy of History, and on Modern History since 1789.

ENGLISH.—Compositions and Original Declamations.

SOCIAL SCIENCE.—International Law (*Lectures*). Thompson's *Elements of Political Economy.*

ELECTIVE,—

GREEK.—Demosthenes *de Coronâ.* Plato (*Apology* and *Crito,* or *Phædo*).

LATIN.—Cicero (*Tusculanæ*), or Lucretius (*Selections*). Horace (*Ars Poetica*). Reading at Sight.

ENGLISH.—Chaucer (*The Canterbury Tales*). Spenser (*Selections*). Shakespeare (*Three Plays*).

GERMAN.—Goethe's *Torquato Tasso.* Lessing's *Dramaturgie.* Reading at Sight. Schiller's Poems. Translations into German. History of German Literature.

FRENCH.—Boileau. Molière. Pascal. Brachet's *Historical Grammar.* History of French Literature and the Language.

PURE MATHEMATICS. Integral Calculus.

---

* In the Junior and Senior years, Greek is elective with German; Latin with French; and Pure Mathematics with History and English.

Digitized by Google

PARTIAL COURSES.

A student may take any portion of the above Courses that the Faculty may sanction; but admission to a *Partial Course* is to be considered an exceptional arrangement, and may be withdrawn when deemed expedient. A Certificate, stating what studies have been pursued, will be awarded to those who complete such a Course satisfactorily.

For further information address Prof. E. O. KENDALL, LL.D., Dean of the Faculty.

DEGREES.

The degree of Master of Arts is conferred on Alumni of the University, Bachelors of Arts of three years' standing, who have pursued liberal studies since their graduation, and who present a satisfactory Thesis to the Faculty. This thesis must be sent to the Dean by the first Friday in April.

THE COURSES

IN THE

TOWNE SCIENTIFIC SCHOOL.

The object of this School (named from its largest benefactor, John Henry Towne) is to give a thorough scientific education with technical training.

The studies of the Freshman and Sophomore years are nearly identical with those of the Department of Arts, except that for Latin and Greek are substituted French, and German, and additional Mathematics.

The Technical Courses of Instruction cover three years, termed Junior, Senior, and Post-Senior; of these, the last is in the main practical.

The Courses are:—

I. CHEMISTRY AND MINERALOGY.
II. GEOLOGY AND MINING.
III. CIVIL ENGINEERING.
IV. DYNAMICAL ENGINEERING.
V. MECHANICAL DRAWING AND ARCHITECTURE.

Duly authenticated graduates of other Colleges are admitted without examination to the Towne School, upon giving evidence that their studies have been such as to fit them to pursue the particular course for which they apply. Candidates, not graduates of other Colleges, must pass a satisfactory examination in the studies of the previous years.

Digitized by Google

ENTRANCE EXAMINATIONS.

For the FRESHMAN CLASS candidates are examined in the following subjects:—

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane and Solid Geometry.

ENGLISH.—Grammar. (Abbott's *How to Parse* or Whitney's *Essentials of English Grammar* indicates the amount required.) Etymology (*Greek and Latin Roots*, as in Sargent's *Manual*.) Abbott's *How to Write Clearly* (first sixty-three pages). Composition. (An essay on a subject to be taken from the last-named of the following books, all of which must have been read by each candidate, viz.: Macaulay's *History of England*, Chaps. VII. to XII. (inclusive), Hawthorne's *Marble Faun*, and Froude's *Essay on Education* (*Short Studies*, 2d Series), and Scott's *Marmion*.

The subject of composition in 1887 will be taken from the last-named of the following works, all of which must have been read by each candidate, viz.: Froude's *Essay on Education* (*Short Studies*, 2d Series); Scott's *Marmion;* Alexander Smith's *On the Writing of Essays* and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210) and Kingsley's *Hereward, the Last of the English*.

FRENCH.—Harrison's *French Syntax* (first forty-five *Practical Exercises*) and *Télémaque* (*Three Books*).

GERMAN.—Ahn's *Method, Fisher's edition* (*First Course, pp.* 1–100 *and* 135–140; *Second Course, pp.* 1–64).

GEOGRAPHY.—Modern Geography.

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Higginson, Scudder or Johnston is suggested.)

COURSE OF STUDY.

FRESHMAN YEAR.

MATHEMATICS.—Newcomb's *Algebra.* Chauvenet's *Plane and Spherical Trigonometry.* Bowser's *Analytical Geometry* begun.

DRAWING.—Geometrical and Isometrical Drawing (Minifie), and Drawing from the Flat. Free Hand Sketching. Use of the Scale and Protractor. Shading in India Ink. Graphical representations from Geometry.

HISTORY.—Barnes's *Brief History of Mediæval and Modern Peoples.* Freeman's *General Sketch of History.*

ENGLISH.—Prose Composition (Abbott's *How to Write Clearly*). Lectures, with Illustrative Readings from an English Prose Writer.

GERMAN.—Review of Grammar. Whitney's *German Reader.* Hodges's *Course of Scientific German.*

FRENCH.—Harrison's French Syntax, Modern French Prose. Bôcher's *French Plays.*

Digitized by Google

SOPHOMORE YEAR.

MATHEMATICS.—Descriptive Geometry. Bowser's *Analytical Geometry.*

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic Chemistry (Experimental Lectures).

DRAWING.—Linear Perspective. Geometric and Isometric Drawing. Projection of Shadows. Architectural Detail and Ornament. Gothic Tracery. Shading in India Ink. Free Hand Drawing.

ENGLISH.—McElroy's *Structure of English Prose.* Lounsbury's *English Language.* Compositions and Declamations.

GERMAN.—Schiller's *Jungfrau von Orleans;* Selections from Virchow and Hotzendorff's *Wissenschaftliche Vorträge.* Practical Exercises.

FRENCH.—Modern Prose (continued). Molière.

TECHNICAL COURSES.

JUNIOR YEAR.

STUDIES PURSUED BY THE WHOLE CLASS.

CHEMISTRY.—Exercises in Analytical Chemistry, with recitations.

LOGIC.—Jevons's *Lectures on Logic.* Ethics.

HISTORY.—Lectures on Modern History, in connection with Wilhelm Müller's *Modern History* as a text-book, and Compositions on Historical subjects.

PHYSICIAL SCIENCE.—Sound, Heat, Light, and Electricity.

MINERALOGY.—Crystallography and General Description of Minerals.

MATHEMATICS.—Descriptive Geometry.

FRENCH.—Racine or Corneille. Molière.

ENGLISH.—Critical Study of English Prose Writers, with Special Reference to Composition. Compositions and Declamations.

1. *Studies pursued by the Chemical Section.*

MINERALOGY.—Special description of species, and practical exercises in determining minerals by their physicial properties.

BOTANY.—Structure of Woods.

2. *Studies pursued by the Geological and Mining Section.*

GEOLOGY.—Elements of Geology. Construction of parts of mines, of mining machinery, etc., from notes and sketches.

MINERALOGY.—Same as 1st section.

BOTANY.—Structure of Woods.

MATHEMATICS.—Differential Calculus.

3. *Studies by the Civil Engineering Section.*

ENGINEERING.—Railroad Location. Graphical Statics.

MATHEMATICS.—Differential Calculus. Spherical Projections.

Digitized by Google

DRAWING.—Topographical Charts, in Ink and colors. Details of frames, joints, etc.

ARCHITECTURE.—Classical Architecture.

SURVEYING.—Field Practice; including Chain Surveying, Use of Compass, Transit and Plane Table in measuring lines and areas, Traversing, Location of Roads, Drains, etc., on Topographical Charts. Recitations from Gillespie's *Land and Higher Surveying*, and *Earthwork Formulæ*, Hydrographical, Mine, and Government Surveying.

4. *Studies pursued by the Dynamical Engineering Section.*

MATHEMATICS.—Differential Calculus.

STATICS.—The application of the principles of Statics to Rigid Bodies. The Elasticity and Strength of Materials. Forms of uniform strength. Theory of Framed Structures. Stability of structures. Theory of the Arch. Strains in parts of mechanism. The Equilibrium and Pressure of fluids, as water, air, steam, etc. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of Hydrometers, Manometers, Gauges, etc. The Equilibrium of Funicular Structures.

DRAWING.—Copies of bolts and nuts; riveting; gudgeons, pivots, axles, shafts, couplings, pillow-blocks; shaft-hangers, pulleys, sheaves, and gear-wheels; connecting rods and cranks, working beams, crossheads, pipe connections, valves, steam cylinders, pistons, stuffing-boxes, glands, etc., etc.

ENGINEERING.—Graphical Statics.

5. *Studies pursued by the Architectural Section.*

ARCHITECTURE.—Classical Architecture and Mediæval Ornament. Shading in India ink. Sketching.

MATHEMATICS.—Differential Calculus.

ENGINEERING.—Graphical Statics.

SENIOR YEAR.

STUDIES PURSUED BY THE WHOLE CLASS.

PHYSICAL SCIENCE.—Special Advanced Physics.

ASTRONOMY.—Newcomb's *Astronomy*.

ENGLISH.—Compositions and Declamations.

SOCIAL SCIENCE.—Thompson's *Elements of Political Economy*, and Lectures.

DESCRIPTIVE AND DETERMINATIVE MINERALOGY.

METALLURGY.—Theory of Metallurgical Processes. Construction of Furnaces. Dressing and Mechanical Treatment of Ores.

1. *Studies pursued by the Chemical Section.*

Organic Chemistry.—Lectures. Making of organic chemical preparations. Organic Analysis.

Qualitative Analysis by the blowpipe, in connection with reactions in the humid way, for the rapid determination of Minerals and Ores.

Digitized by Google

Theoretical Chemistry.

Introduction to Metallurgy.—Theory of Metallurgical Processes; theory and construction of furnaces and other metallurgical apparatus. Dressing of ores considered theoretically and practically.

Assaying of ores and fuels, with special application of volumetric analysis.

Demonstration of the principal metallurgical processes by furnace practice.

Instruction in the practical production of chemical salts, preparations, and simple substances in their greatest perfection and purity; and also according to the principles which govern their manufacture on a large scale.

Qualitative Analysis of more complex substances, with practice in determining the color and condition of products and in the determination of minerals.

Qualitative Analysis and detection of the rarer elements and organic constituents of bodies. Introduction to Quantitative Analysis. Use of the spectroscope in qualitative determinations.

2. *Studies pursued by the Geological and Mining Section.*

LITHOLOGY AND PALÆONTOLOGY.—Examination and determination of Rocks and of Fossil Organic forms.

MINING ENGINEERING.—Methods used in searching for and developing deposits of valuable Minerals. Sinking of Shafts. Drifting and stopeing.

DRAWING AND MODELLING.

DYNAMICAL ENGINEERING.—Statics and Dynamics of rigid bodies. Determination of centres of gravity; moments of flexure, rupture, etc. Practical exercises in constructing and drawing machines.

SURVEYING.—At the beginning of summer vacation a complete mine survey will be executed in the coal regions.

ANALYTICAL CHEMISTRY, METALLURGICAL PRACTICE AND ASSAYING. The same as the Chemical Section.

MATHEMATICS.—Differential and Integral Calculus.

Field excursions into the neighboring mineral districts for the demonstration of practical Geology.

3. *Studies pursued by the Civil Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus.

DRAWING.—Shades, Shadows, and Perspective; Platting field notes; Engineering Construction and Stereotomy.

ARCHITECTURE.—Ornament. History of Architecture. Decoration and shading.

SURVEYING.—A complete course in practical topography, including special instruments and field sketching. Field practice. Reconnaissance, Use of Prismatic Compass, Level, Solar Transit, Repeating Theodolites, and Heliotropes. Sketching.

GEODESY.—Measurements of Bases, Triangulation, Determination of Meridian Latitude, Longitude, Time, and Azimuth.

Digitized by Google

ENGINEERING.—Mechanics of Engineering, embracing the Statics of Rigid Bodies, Determination of the Centres of Gravity, Moments of Flexure, Rupture, Resistance, Torsion, Analysis of Bridge and Roof Trusses, Strength and Properties of Materials, etc. Nomenclature of and Constructions in Masonry, Timber, Iron, and Steel, as applied to Light-houses, Bridges and Roofs, Depots, and other engineering structures. Equilibrium of Arches and Retaining Walls. Tunnelling and Earth-works, with the required plant and organization. Sea-coast and Harbor improvements. Canal and River improvements. Transportation.

4. *Studies pursued by Dynamical Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus.

KINEMATICS.—Laws of motion. Elementary combinations of Pure Mechanism. Pulleys and belts. Trains of gearings and forms of teeth of wheels. Parallel motions. Link and valve motions, with a consideration of the various forms of valves, illustrated by working models.

DRAWING.—From the model and original design.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Weekly visits of inspection will be made to blast-furnaces, foundries, iron and steel-rolling mills, ship-yards, steam and hydraulic forges, etc.

5. *Studies pursued by the Section in Drawing and Architecture.*

MATHEMATICS.—Differential and Integral Calculus.

DRAWING AND ARCHITECTURE.—The study of Executed Works and of Buildings in Progress. History of Architecture, illustrated by views of structures of all ages. Ornaments. Shading in India Ink. Sketching.

ENGINEERING.—Same as Section 3, so far as to include strength and properties of materials.

POST-SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

ENGLISH.—Compositions and Declamations.

GEOLOGY.—Structural Geology of North America with reference to that of Europe, and with the principal minerals and fossils, distribution of metals and fuels. History of Geology.

1. *Studies pursued by the Chemical Section.*

Theoretical Chemistry.

Lectures on the Applications of Chemistry in the Useful Arts.

Quantitative Gravimetric Analysis of the simple and complex salts and minerals. Volumetric Analysis and preparation of normal solutions. Gas Analysis. Manufacture, graduation, and use of eudiometers.

Determination of the constituents of cast-iron and steel. Practice in Agricultural Chemistry, and Analysis of Manures.

Determination of small amounts of impurities (adulteration and poison in

Digitized by Google

food and drink). Analysis of water of mineral springs. Practice in production of Chemical preparations. Quantitative Blowpipe Analysis.

Special Metallurgy—Gold, Silver, Lead, Copper, Zinc, Cobalt, Nickel, etc. Metallurgy of Iron and Steel treated with special attention. Metallurgical practice. Construction of plans for metallurgical works, with estimates of cost.

Practical determination of minerals by their physical properties.

2. *Studies pursued by the Geological and Mining Section.*

GEOLOGY.—The Ore and Coal deposits of the United States in their topographical and structural relations.

MINING ENGINEERING.—Ventilation and Drainage of Mines. Description and construction of Mining Machinery.

DYNAMICAL ENGINEERING.—Motors and Principles of Mechanism.

SURVEYING.—The survey made during the previous vacation will be mapped.

METALLURGY AND ANALYTICAL CHEMISTRY.—Same as Section 1.

PRACTICE IN LITHOLOGICAL DETERMINATION by means of microscopic sections and microchemical tests.

CONSTRUCTION AND APPLICATION OF GEOLOGICAL SECTIONS relating to problem of mining.

3. *Studies pursued by the Civil Engineering Section.*

ENGINEERING.—Observation tours, for collection of data, and critical reports on works in process of construction. Estimates of cost, prices of labor and materials. Construction and arrangement. Preparation of contracts and specifications. Theses for graduation.

DRAWING.—Details of Engineering Works, Composition, Plans, Sections, Elevations; Profiles and Cross-sections. Working drawings.

HYDRAULICS.—Recitations, and Lectures.

MODELLING.—Construction of trusses for bridges and roofs, girders, etc. Problems in stone-cutting. Tunnels.

ARCHITECTURE.—Shading, Decoration. History of Architecture (continued).

4. *Studies pursued by the Dynamical Engineering Section.*

THE ANALYSIS AND SYNTHESIS OF MECHANISM.—Machine Tools and their principles. Lectures on forging, riveting, pattern making and moulding.

DYNAMICS.—Lectures on the conditions under which work and power act, and the means of regulating and transmitting the same. The Efflux of fluids. The Flow of Fluids through pipes. The Impulse and Resistance of Fluids. Theory of Oscillation of Fluids. Lines of least resistance. Hydraulic motors. Turbine, overshot, breast, and undershot water wheels.

THERMODYNAMICS.—Values of Fuels. Strength, safety, and evaporative power of boilers. Steam and its properties. The Mechanical Theory

Digitized by Google

of Heat. Stationary, locomotive, and marine Steam Engine. Lectures on the proper proportions of the various parts of the Steam Engine.

LECTURES ON, AND USE OF, INSTRUMENTS.—Steam Engine Indicator. Planimeter. Dynamometer. Odontograph. Slide Rules. Arithmometers. Trammel and Testing Machines. Peaucellier's Compound Compass.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Weekly visits of inspection will be made to blast-furnaces, foundries, machine-shops, iron and steel rolling-mills, ship-yards, steam and hydraulic forges, etc., etc.

DRAWING.—Original Designs. Designs and Calculations for special machines. Detailed working drawings, with specifications.

5. Studies pursued by the Section in Architecture and Drawing.

ARCHITECTURE.—Elements of design and principles of composition. Ornament of all styles. Sketching and measurement of works executed and in progress, building materials and processes. Specifications. Contracts. History of Architecture (concluded).

DRAWING.—Plans, Elevations, and Sections of original designs. Exercises with perspective Views. Water-color. Sketching.

ENGINEERING.—Studies of Construction in Masonry, Timber, Iron and Steel; of Roof Trusses, Girders, etc. Experiments on Strength of Materials, Beams, and Trusses.

METHODS OF STUDY.

For the first two years, all studies are required, and are the same for all students. The technical courses begin with the Junior year.

Instruction is thoroughly practical. It is given by lectures and recitations, and in the Laboratories and the Drawing and Model Rooms. These are open to the students all day, and work is required of the higher classes in the afternoon as well as in the forenoon.

In CHEMISTRY, the Juniors have a course of fully illustrated Lectures, covering the whole ground of Inorganic Chemistry, and another on Mineralogy and Metallurgy. At the same time, they begin work in the Analytical Laboratories. In the Senior and Post-Senior years, studies in Qualitative and Quantitative Analysis and Lectures on Organic Chemistry are combined with the making of Chemical Preparations and practical work in Metallurgy and other Technical Subjects.

Students in GEOLOGY and MINING ENGINEERING are trained with special reference to the management of mines. The practical study of rocks and minerals in the Laboratory and Museum, as well as in the field; the training in the construction and management of ore-concentrating machinery; the illustrative discussion of difficult problems in the development of mines, such as the rectification of faults in the veins and strata; the drainage and ventilation of mines;—these and similar subjects are

Digitized by Google

considered the most essential features of the course. Importance is attached rather to the economical occurrence and distribution of ores throughout the United States, than to the discussion of theories and hypothetical opinions.

Students in CIVIL ENGINEERING are instructed by recitations, lectures, and practical work, in order to develop the qualities most required of the practical engineer. Afternoons and Saturdays are devoted to drawing and practical work in the shop, or to surveying or visiting public or private works, manufactories, etc.

During the last year the student's time is devoted largely to examinations and reports upon engineering works in process of construction; to making estimates and designs for new projects, from data collected in the field; and to the preparation of Theses.

Special Students may be received for the last three years of this course, if found to be sufficiently advanced in *Mathematics*, *Physics*, *Mechanics*, and *Drawing*.

In *visiting shops and manufactories*, students are required to collect all the practical information possible, and to embody it in a written report, noting particularly any new or special features for economizing time or materials, improved methods of assembling parts, etc., as well as the general plant, apparatus, and facilities for receiving and shipping materials.

The *field practice* embraces the various problems in chain surveying, the measurement of areas, and the computation of results; line surveys and location, cross sections and levels for estimating quantities, hydrography, topography with the plane-table, and the solution of such geodetic problems as relate to the orientation of maps.

The *Course in Drawing* includes the projection of maps; various methods of representing Topography; conventional signs; problems in shades, shadows and perspective; details of framing; composition; general drawings for constructions in wood, stone, and iron; special designs; working drawings for modelling; plotting; drawing of profiles and cross sections and drawing for theses.

Students of DYNAMICAL ENGINEERING are required to give particular attention to the kinematics of mechanism, to the conditions under which work and power act, and the means of regulating and transmitting the same; to the problems of hydraulics and hydraulic motors, and to the mechanical theory of heat with its applications to the steam engine, etc., as will appear from the detailed course of study already given.

Special attention is given to the execution of drawings, first from designs and models, and afterwards from calculations; and also to the methods of casting and working in iron, and of making and using machine tools.

Digitized by Google

Adequate instruction is also provided in Marine Engineering and Naval Architecture.

Weekly visits of inspection will be made during two years of the course to blast-furnaces, foundries, machine shops, and iron and steel rolling-mills.

The instruction in PHYSICS extends over three years. In the Junior year the subjects treated are Sound, Heat, Light, and Electricity, the exercises consisting of lectures, illustrated by experiments, with recitations. In the Senior year, special instruction is given in Advanced Physics. Practical instruction in the Physical Laboratory is given throughout the year. The course is optional and is intended for such students only as are competent to take it with advantage.

SPECIAL COURSES.

Special students, not candidates for a Degree, may be received into any of the courses, when the Professor in charge of that course is satisfied of their competency to profit by his instruction. They take all the studies that the Professor thinks necessary to complete the course, together with such others as the Faculty may require. At the end of the course, upon passing the examinations required, and presenting a satisfactory thesis, they receive a Certificate of Proficiency. Application should be made to the Professor in charge of the course which the student wishes to take, and definite arrangements may be made with him,—subject, however, to the approval of the Faculty.

LIBRARY.

The Rogers Engineering Library is composed of standard works treating of drawing, mathematics, astronomy, physics, surveying and explorations, technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering; together with a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams, and drawings.

DEGREES.

The Degree of *Bachelor of Science* (*B.S.*) is conferred on students who have passed creditably through the five years' curriculum of this school, together with a Special Degree indicating the Special Course which they have pursued. These Special Degrees are those of *Mining Engineer, Civil Engineer, Mechanical Engineer, Architect,* and *Practical Chemist;* and for them a satisfactory Thesis must be prepared and presented.

For further information address Professor E. O. KENDALL, LL.D., Dean of the Faculty.

Digitized by Google

A COURSE IN PHILOSOPHY FOR UNDERGRADUATES.

This course provides instruction in Latin, English, French and German, Mathematics, and Natural Science. During the Junior and Senior years, a large amount of time is devoted to Biological studies, with practical laboratory work, under Prof. Joseph Leidy, the Director of the Biological Department, and the other members of the Biological Faculty. The new Biological Building, with its lecture-room, laboratories for general and special work, its cabinets, herbarium, library, and abundant supplies of material for practical work, affords ample facilities for these studies.

ENTRANCE EXAMINATIONS.

For the Freshman Class, candidates are examined in all subjects required for admission to the Towne Scientific School, and in the Latin required for the Course in Arts, or its equivalent.

For ADVANCED standing, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes. The examinations are held in June and September. Circulars stating the days and the subjects of examination for each day can be had after April 1st, on application to the Clerk of the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

LATIN.—Selections from Livy.

ENGLISH.—Prose Composition (Abbot's *How to Write Clearly*). Lectures, with Illustrative Readings from an English prose writer.

GERMAN.—Whitney's *German Reader*. Körner's *Zriny*. Grammar and Exercises.

FRENCH—Modern French Prose.

HISTORY.—Freeman's *General Sketch of History*.

MATHEMATICS.—Newcomb's *Algebra*. Chauvenet's *Trigonometry*.

DRAWING.—Freehand Drawing.

SOPHOMORE CLASS.

LATIN.—Horace (*Selected Odes or Satires*).

ENGLISH.—McElroy's *Structure of English Prose*. Lounsbury's *English Language*. Compositions and Declamations.

GERMAN.—Hodges's *Course of Scientific German*. Selections from *Virchow & Holtzendorff's Wissenschaftliche Vorträge*. Schiller's *Jungfrau von Orleans*.

Digitized by Google

FRENCH.—Modern French Prose. Molière.

HISTORY.—Lectures.

MATHEMATICS.—Analytical Geometry.

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic and Organic Chemistry (Experimental Lectures, with Examinations).

JUNIOR CLASS.

ENGLISH.—Critical Study of English Prose Writers, with Special Reference to Composition. Compositions and Declamations.

HISTORY.—Lectures on Modern History with Wilhelm Müller's *Modern History* as a Text-book, and Compositions on historical subjects.

LOGIC.—Jevons's *Lessons in Logic;* Ethics (Whewell's *Elements*); Murray's *Outlines of Hamilton's Philosophy;* Lectures.

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.*)

CHEMISTRY.—Inorganic Analytical Chemistry.

GENERAL BIOLOGY.—Vegetal Biology. Animal Biology. (Lectures and practical work.) Huxley's and Martin's *Elementary Biology.* Bessey's *Botany.* Brooks' Handbook of *Invertebrate Zoology* Parker's *Zootomy.*

MAMMALIAN ANATOMY.—Lectures and laboratory exercises. Mivart's *The Cat.* Wilder's *Anatomical Technology.*

BOTANY.—Systematic Botany. Practical exercises. Gray's *Botanical Text-book.* Gray's *Manual of Botany.*

SENIOR CLASS.

ENGLISH.—Chaucer (*The Canterbury Tales*). Spenser (*Selections*). Shakespeare (*Three Plays*). Compositions and Declamations.

PHILOSOPHY.—Berkeley's *Principles;* Studies in the *History of Philosophy;* Butler's *Analogy;* Lectures.

SOCIAL SCIENCE.—Thompson's *Elements of Political Economy,* and Lectures.

ASTRONOMY.—Newcomb's *Astronomy.*

GEOLOGY.—Systematic and Stratigraphic Geology.

MINERALOGY.—Descriptive Mineralogy.

BOTANY.—1. (*a*) Medical Botany; the plants used in Medicine, adulteration of foods and drugs, or (*b*) Vegetal Morphology. 2. The life histories of plants. Practical exercises. Bessey's *Botany,* Sach's *Text-book of Botany.*

ZOOLOGY.—The outlines of General Zoology and Comparative Anatomy. The classification and distribution of animals. Lectures. Claus' *Elementary Text-book of Zoology.* Gegenbauer's *Comparative Anatomy.*

ANIMAL HISTOLOGY.—Lectures and laboratory exercises on Microscopic Anatomy. Schäfer's *Essentials of Histology.*

EMBRYOLOGY.—Lectures and laboratory exercises and the development of the chick. Foster and Balfour's *Elementary Embryology.*

PHYSIOLOGY.—The Elements of Physiology. Lectures and practical work. Dalton's *Physiology.*

Digitized by Google

At the close of Sophomore Year, students may elect to enter the Junior Class in the Course in Arts or in the Wharton School. The Degree of Bachelor of Philosophy is conferred upon students who complete the full course.

Instruction is given by lectures and recitations, and in the Laboratories of the College and Biological buildings. These latter are open all day, and by the higher classes a part of the work is done in the afternoon. Latin, History, Philosophy, Mathematics, and the Physical Sciences are assigned in proportions suitable to the general purpose of the Course. French and German receive special attention in the first two years, with a view to the effective use of text-books in these languages in the Junior and Senior years.

The study of the English Language and Literature extends through the four years, and is intended to be thorough and critical. In Chemistry, the Sophomores attend illustrated lectures on Inorganic and Organic Chemistry, followed in the Junior year by a course of analytical work in the Laboratory.

The instruction in General Biology is in the form of practical laboratory exercises, accompanied by explanatory lectures, and comprises the study of the structure, functions, and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena, manifested in the different forms of living matter, before beginning the study either of Botany or Zoology. The series studied are: (1) Amoeba, Paramæcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Bracken-fern, and Bean-plant as exhibiting the structure and activities of plants. (3) These compared with Sponge, Hydra, Starfish, Earthworm, Leech, Cyclops, Crayfish, Cockroach, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, Pigeon, and Rabbit as animals.

The course in Mammalian Anatomy consists of lectures on the methods of anatomical investigation, a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy. In the laboratory the class carefully dissects the cat.

The work in Botany, during the Junior year, consists in exercises in the determination and classification of plants, and begins in the second term after the student has finished the first half of the course in General Biology. and has acquired a sufficient knowledge of vegetal structure and physiology, In the first term of the Senior year some choice is permitted. The student may take up Medical Botany, if intending to study medicine, or may devote his attention to more advanced work in plant structure. During the second term the life-histories of plants, their development, growth, and reproduction are studied.

General Zoology and Comparative Anatomy embrace the study of the differences between organic and inorganic bodies; animals and plants; in-

Digitized by Google

dividuals and colonies; cells and cell aggregates; a short account of the tissues; growth and division of labor; organs, their structure; reproduction, general facts of embryology; metamorphosis, alternation of generation, polymorphism and heterogony; systems of classification; the Darwinian theory; species and varieties; a succinct account of the various groups of animals, their anatomy, development and distribution.

Histology is taught, during the first term in the Senior year, mainly by practical work with the microscope. The structure of animal tissues and organs, and the methods of examining and preparing microscopic specimens, are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Embryology of the chick, with laboratory exercises in the preparation and study of the principal stages of development.

The instruction in the elements of Human and Comparative Physiology embraces the following subjects: nutrition, food-stuffs and digestion; circulation; respiration; reproduction; muscular function, including locomotion, speech, etc.; and the functional activity of nerve and brain.

THE COURSE IN FINANCE AND ECONOMY

IN THE

WHARTON SCHOOL.

This School aims to give a thorough general and professional training to young men who intend to engage in business, or upon whom will devolve the management of property, It also equips more completely persons who are preparing for the profession of Law, for Journalism, or for Public Service. The Founder of the School has remarked that "a great boon would be bestowed upon the nation if its young men of inherited intellect, means and refinement could be drawn into careers of unselfish legislation and administration; and, as the possession of any power is usually accompanied by taste for its exercise, it is reasonable to expect that adequate education in the principles underlying successful civil government would aid in producing such a class of men."

The Wharton School, therefore, has a well-defined aim not possessed by any other educational institution. Its instruction is of immediate practical importance to persons who are looking forward to a business career, or who wish to know how to manage their own affairs; to legal students desirous

Digitized by Google

of acquiring the best preparation possible for successful practice, and to those who are pressing into the ranks of journalism, such instruction is scarcely less important; while to persons who aim to serve the public in a legislative or administrative capacity, it should be indispensable. The success of the lawyer is often due as much to an extensive acquaintance with business, as to a knowledge of legal principles. For those who are desirous of becoming proficient in economic and financial science—especially for those who expect to teach political science—the Wharton School provides a more complete course than is furnished elsewhere. By adding a comprehensive knowledge of business to an extended knowledge of economic principles, the foundation is laid for a correct political economy, which must command the respect of those thoughtful business men who are skeptical concerning the worth of the political economy taught at the present time in most American colleges.

LIBRARY.

The University possesses one of the largest and most complete libraries of works relating to finance and political economy existing in any educational institution of the world. The foundation was laid by the great collection of the late Stephen Colwell, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, besides many in German. This has been supplemented (1) by the gift from Mr. McCalmont, of London, of a collection of about three thousand English pamphlets, covering the period from the close of the seventeenth century to our own time, and bound in chronological order; (2) by the bequest of the library of the late Henry C. Carey, which includes many works and pamphlets that appeared since Mr. Colwell's death, and is especially rich in statistical literature, European government reports, and the like.

Original research by the students, under the direction of the professors, is a part of the work of the School.

COURSE OF STUDY.

The course of study extends through four years, and embraces the following studies:

FRESHMAN YEAR.

HISTORY.—Freeman's *General Sketch of History*. [2*]

ENGLISH.—Prose Composition (Abbott's *How to Write Clearly*). [2] Lectures, with Illustrative Readings from an English prose writer.

FRENCH. Modern French Prose. [4]

* The numeral indicates hours per week.

Digitized by Google

GERMAN.—Whitney's *German Reader*. Körner's *Zriny*. Grammar and Exercises. [4]

MATHEMATICS.—Newcomb's *Algebra*. Chauvenet's *Trigonometry*. [5]

SOPHOMORE YEAR.

HISTORY.—English and American History. [2]

ENGLISH.—McElroy's *Structure of English Prose;* Lounsbury's *English Language*. Compositions and Declamations. [2]

FRENCH.—Modern French Prose. Molière. [4]

GERMAN.—Schiller's *Jungfrau von Orleans*. [4]

MATHEMATICS.—Descriptive Geometry. Analytical Geometry. [4]

PHYSICS.—Mechanics. [4]

CHEMISTRY.—Inorganic Chemistry. Lectures. [3]

JUNIOR YEAR.

FIRST TERM.

POLITICAL SCIENCE.—Theory of the State. Public Functions. (Lectures and Text-book. Mulfords's *Nation*. Selected portions of Bagehot's *Physics and Politics*. Crane and Moses's *Comparative Politics*.) [3]

AMERICAN POLITICS.—First Term, Washington to Jackson. (Johnston's *History of American Politics*. Gay's *Madison*. Morse's *John Quincy Adams*.) [3]

POLITICAL ECONOMY.—Thompson's *Elements of Political Economy*. Walker's *Political Economy*. [4]

LOGIC.—Jevons's *Logic*. [2]

PHYSICS.—Elementary Physics, Sound and Heat. Lectures. [4]

INTERNATIONAL LAW.—Lectures. (Optional.)

SECOND TERM.

CIVIL GOVERNMENT.—Elements of the Constitutional and Administrative Law of the Federal and State Governments. (Lectures and Text-book.) [3]

AMERICAN POLITICS.—Jackson to Arthur. (Sumner's *Jackson*. J. F. Clark's *Anti-Slavery Days*.) [3]

POLITICAL ECONOMY.—Thompson and Walker completed. Laveleye's *Éléments d' Économie politique*. Sidgwick's *Political Economy*. [4]

MORAL PHILOSOPHY.—Whewell's *Elements*. [2]

PHYSICS.—Elementary Physics. Light and Electricity. [4]

SENIOR YEAR.

FIRST TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS. Compositions and Lectures. [3]

MERCANTILE PRACTICE.—Lectures. Bolles's *Practical Banking*. [4]

Digitized by Google

AMERICAN CONSTITUTIONAL HISTORY.—First Period, 1789–1825. Lectures. (Von Holst's *Constitutional History of the United States.* Young's *American Statesman.*) [3]

FINANCE.—Principles and Methods of Public Finance. Objects of Public Expenditure. Revenue from Public Property and Fees. (Lectures. Bolles's *Financial History of the United States.*) [2]

CIVIL GOVERNMENT.—Principles of General Constitutional and Administrative Law. Principles and Comparative Methods of Legislation. Lectures. [2]

ENGLISH CONSTITUTIONAL HISTORY.—Stubb's *Constitutional History of England.* (Optional.)

SECOND TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS.—Composition and Lectures. (Continued.) [3]

MERCANTILE LAW.—Parsons's *Laws of Business.* [4]

RAILROADS.—Kirkman's *Railway Expenditures, their Extent, Object, and Economy.* Hadley's *Railroad Transportation.* (Ten Lectures).

AMERICAN CONSTITUTIONAL HISTORY.—Second Period, 1825–1885. (Lectures and Text-books.) [3]

FINANCE.—Principles and Methods of Public Finance. Theory and Practice of Taxation. Financial Administration. Local Finance. Lectures. [2]

CIVIL GOVERNMENT.—Principles and Comparative Methods of Public Administration—general and local. Lectures. [2]

STATISTICS.—Principle and Methods of Statistical Science. (Ten Lectures.)

CONSTITUTIONAL LAW.—(Optional.)*

ROMAN LAW.—(Optional.)*

PREPARATION OF THESES.

The course in the Freshman and Sophomore years is nearly parallel with that in the Towne Scientific School; but more attention is given to the study of History and less to Mathematics. Enough Mathematics, however, is required of all students to enable them to pursue satisfactorily their studies in Physics.

The instruction in Political Economy during the Junior year is that which is usually given to the Junior and Senior classes in colleges. During the Senior year instruction in this branch is given through compositions and discussions by the class, followed by a review, exposition and application of principles by the professor.

Instruction in European Finance comprises the history, and a description and comparison of the financial systems of the principal countries of Europe. American Finance comprises a history of the national, state and municipal systems, and a comparison of them with foreign systems.

* These courses are given in the Law School, but are open to Wharton School students.

Digitized by Google

The subject of Legislation and Administration is treated comparatively, including the practice of all the principal European countries and our own, beside the varying practice of the several States of the Union.

Instruction in Statistics embraces an investigation of the sphere and function of statistics, with practical training in the proper method of collecting and arranging them.

During the first term, the course in American Politics covers the period from the formation of the Constitution to the close of Jackson's administration. This subject is studied with the aid of text-books and special works; and essays are required on collateral topics. The Senior year is devoted to the Constitutional History of the United States. Much of the work is done by students in libraries. A series of lectures is given on the more important Constitutional questions, and essays thereon are prepared by the students and read in the class-room.

Instruction in Railroads pertains to their organization, cost of construction and operation, and their relation to other industries.

Mercantile Practice covers the usages and methods of business, the management of property and the administration of trusts, and is supplemented and completed by an exposition of the leading principles of Mercantile Law.

EXAMINATIONS FOR ADMISSION AND ADVANCED STANDING.

Candidates for admission to the Freshman class must pass the same examination as is required for admission to the course in Philosophy. Students in the Department of Arts, the Towne Scientific School or the Course in Philosophy who enter the Wharton School Course at the beginning of the Junior year, receive, at graduation, the degree of A.B., B.S., or Ph.B., according to the course from which they have come. Students from other colleges are admitted on the same conditions. Graduates in any course of colleges in good standing may enter the Senior Class without preliminary examination.

Students who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the School.

DEGREES.

The degree of Bachelor of Philosophy (Ph.B.) is conferred after satisfactory examination on all who have pursued the four years course, and on graduates in Arts of the University of Pennsylvania or of colleges of equal standing who have pursued the course in this School for the senior year.

For additional information, apply to the Secretary, Professor Albert S. Bolles.

Digitized by Google

COURSES OF STUDY IN THE COLLEGE FACULTY.

[Including all extra (Saturday, Machine Shop, etc.) hours.]

SUBJECT OF STUDY.	Course in Arts.				Course in Philosophy.				Wharton School Courses.		Scientific Course.																	
													Junior.					*Senior.*					*Post-Senior.*				
	Fresh.	*Soph.*	*Junior.*	*Senior.*	*Fresh.*	*Soph.*	*Junior.*	*Senior.*	*Junior.*	*Senior.*	*Fresh.*	*Soph.*	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	
Greek	4	3	3[1]	2[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Latin	5	4	2½[1]	3[1]	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
English	2	2	.	2[1]	2	2	2	2	.	.	2	2	1	1	2	2	2	.	.	.	.	.	.	.	.	.	.
German	.	1	3[1]	2[1]	4	4	.	.	.	.	4	4	2[1]	2[1]	2[1]	2[1]	2[1]	.	.	.	.	.	.	.	.	.	.
French	.	.	2½[1]	3[1]	4	4	.	.	.	.	4	4	2[1]	2[1]	2[1]	2[1]	2[1]	.	.	.	.	.	.	.	.	.	.
Linguistics	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
History and English Literature	2	.	1	2	2	.	.	.	.	.	2	.	2	.	2	2	2	.	.	.	.	.	.	.	.	.	.
American History	.	.	3[1]	.	.	2	3	.	3	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Logic and Philosophy	.	.	3½	3	.	.	2	3	2	.	.	.	2	.	2	2	2	.	.	.	.	.	.	.	.	.	.
Mathematics	5	4	3[1]	2[1]	5	3	.	.	.	.	5	3	.	3	3	3	3	.	.	.	.	.	.	.	.	.	.
Astronomy	.	.	.	1½	.	.	.	1½	.	.	.	.	.	.	.	.	.	1½	1½	1½	1½	1½	.	.	.	.	.
Physics	.	1	4	.	.	1	4	.	4	.	.	1	4	4	4	4	4	3	3	3	3	3	.	.	.	.	.
Political Economy	.	.	.	1½	.	.	.	1½	4	3	.	.	.	.	.	.	.	1½	1½	1½	1½	1½	.	.	.	.	.
Political Science	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Finance	.	.	.	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mercantile Practice	.	.	.	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	2
General Chemistry	.	3	.	.	.	3	.	.	.	.	.	3	1	.	.	.	.	2	2	.	.	.	.	.	.	.	.
Analytical Chemistry	.	.	.	.	.	.	4	.	.	.	.	.	12	5	3	.	.	16	9	.	.	.	16	7	.	.	.
Applied Chemistry	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1	.	.	.
Metallurgy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3	1	1	1	6	6	.	.	.
Mineralogy	.	.	.	.	.	.	.	2	.	.	.	.	2	2	.	.	.	4	4	2	.	.	.	.	.	.	.
Geology	.	.	.	.	.	.	.	2	.	.	.	.	.	1	.	.	.	.	1	.	.	.	2	7	2	.	.
Mining Engineering	.	.	.	.	.	.	.	.	.	.	.	.	.	5	.	.	.	.	4	.	.	.	.	8	.	.	.
Civil Engineering	.	.	.	.	.	.	.	.	.	.	.	.	.	6	1 1	2	2	.	.	13	.	2	.	.	26	.	3
Dynamical Engineering	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	11	.	.	.	.	14	.	.	1	.	24	.
Architecture	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.	.	4	.	14	.	.	.	.	20
Drawing	.	.	.	.	2	.	.	.	.	.	3	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Botany	.	.	.	.	.	.	2	4	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	2
General Biology	.	.	.	.	.	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Zoology	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mammalian Anatomy	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Histology and Embryology	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Physiology	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	18	18	17	16	21	21	25	22	16	15	20	20	26	29	29	28	26	31	29	26	21	26	26	30	30	24	27

[1] Elective.

THE COURSE IN MUSIC.

The qualifications required to enter the department are, *first*, a knowledge of the rudiments of music, and, *second*, the ability to play on some instrument—preferably the piano or organ.

The course extends over two years. The year begins on the first Monday in October, and is divided into three terms of ten weeks each. The first year is devoted to Harmony, the second to Counterpoint and Composition.

Persons of both sexes are admitted. The fees are ten dollars ($10) for each term, payable in advance.

Students who take the whole course will receive a certificate to that effect, if in the judgement of the Professor their acquirements entitle them to it. At any subsequent time, they may receive the degree of Bachelor of Music (Mus. Bac.), on the following conditions:—

1. They may be examined in Harmony, Counterpoint, and Composition, by three examiners appointed by the Professor, subject to the approval of the Provost; the examination to be oral or written, or both, at the discretion of the examiners.

2. They must submit to the examiners an original composition in the form of a cantata for solos and chorus, with an accompaniment of at least a quintette of string-instruments.

3. This composition must be of such length as to require at least twenty minutes for its performance; it must contain a four-part fugue; and the accompaniment must be independent, except in the fugue.

4. The composition must be accompanied by a written statement that it is the student's own unaided effort.

For detailed information, apply to Prof. H. A. Clarke, 223 S. 38th Street.

Digitized by Google

DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics and Diseases of Women and Children*.
D. HAYES AGNEW, M.D., LL.D., John Rhea Barton Professor of *Surgery*, and Professor of *Clinical Surgery*.
WILLIAM PEPPER, M.D., LL.D., Professor of *Theory and Practice of Medicine* and of *Clinical Medicine*.
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology*.
JAMES TYSON, M.D., Professor of *General Pathology and Morbid Anatomy*.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy, and General Therapeutics*.
THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry and Toxicology*.
JOHN ASHHURST, JR., M.D., Professor of *Clinical Surgery*.
WILLIAM OSLER, M.D., Professor of *Clinical Medicine*.
——— ——— Professor of *Physiology*.*

CLINICAL PROFESSORS.

WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye*.
GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear*.
HORATIO C. WOOD, M.D., LL.D., Clinical Professor of *Nervous Diseases*.
LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases*.
LOUIS STARR, M.D., Clinical Professor of *Diseases of Children*.

ASSISTANT PROFESSOR.

EDWARD T. BRUEN, M.D., Assistant Professor of *Physical Diagnosis*.

---

* The course in Physiology, Session 1885–6, will be given by Dr. Edward T. Reichert.

Digitized by Google

AUXILIARY PROFESSORS.

JOHN J. REESE, M.D., Professor of *Medical Jurisprudence*, including *Toxicology*,

JOSEPH G. RICHARDSON, M.D. Professor of *Hygiene*.

LECTURERS AND DEMONSTRATORS.

ROLAND G. CURTIN, M.D., Lecturer on *Physical Diagnosis*.

CHARLES K. MILLS, M.D., Lecturer on *Mental Diseases*.

ADOLPH W. MILLER, M.D., Lecturer on *Materia Medica* and *Pharmacy*, and Instructor in *Practical Pharmacy*.

DE FOREST WILLARD, M.D., Lecturer on *Orthopædic Surgery*.

ELLIOTT RICHARDSON, M.D., Lecturer on *Clinical* and *Operative Obstetrics*, and Demonstrator of *Operative Obstetrics*.

JOHN MARSHALL, M.D., NAT.SC. D., Demonstrator of *Practical Chemistry*.

J. WILLIAM WHITE, M.D., Demonstrator of *Surgery*, and Lecturer on *Venereal Diseases*.

HARRY R. WHARTON, M.D., Instructor in *Clinical Surgery*.

JOHN B. DEAVER, M.D., Demonstrator of *Anatomy*.

HENRY F. FORMAD, M.D., Demonstrator of *Morbid Anatomy* and *Pathological Histology*, Lecturer on *Experimental Pathology* and Librarian of the Stillé Medical Library.

EDWARD T. REICHERT, M.D., Demonstrator of *Experimental Physiology*.

GEORGE A. PIERSOL, M.D., Demonstrator of *Normal Histology*.

RICHARD H. HARTE, M.D., Demonstrator of *Osteology*.

THOMAS R. NEILSON, M.D.,
EDMUND W. HOLMES, M.D., } Assistant Demonstrators of *Anatomy*.

RICHARD H. HARTE, M.D.,
THOMAS R. NEILSON, M.D., } Assistant Demonstrators of *Surgery*.

ALBERT L. A. TOBOLDT, M.D., Assistant Demonstrator of *Practical Pharmacy*.

WILLIAM A. EDWARDS, M.D.,
JUDSON DALAND, M.D., } Instructors in *Clinical Medicine*.

N. ARCHER RANDOLPH, M.D., Assistant Demonstrator of *Physiology*.

WASHINGTON H. BAKER, M.D., Assistant to the Professor of *Obstetrics*.

J. P. CROZER GRIFFITH, M.D., Assistant Demonstrator of *Normal Histology*,

GEORGE E. DE SCHWEINITZ, M.D., Prosector to the Professor of *Anatomy*.

SAMUEL D. RISLEY, M.D., Instructor in *Ophthalmology*.

W. M. L. ZIEGLER, M.D., Instructor in *Otology*.

Digitized by Google

CARL SEILER, M.D., Instructor in *Laryngology.*
FRANCIS X. DERCUM, M.D., Instructor in *Nervous Diseases.*
J. HENDRIE LLOYD, M.D., Instructor in *Electro-Therapeutics.*
A. SYDNEY ROBERTS, M.D., Instructor in *Orthopædic Surgery.*
HENRY W. STELWAGON, M.D., Instructor in *Dermatology.*
ROBERT P. ROBINS, M.D., Instructor in *Clinical Medicine.*
WILLIAM E. HUGHES, M.D., } Assistants in *Physical Diagnosis.*
HOBART A. HARE, M.D., }
SAMUEL G. DIXON, Assistant Demonstrator of *Physiology.*
THOMAS R. NEILSON, M.D., Instructor in *Venereal Diseases.*
WILLIAM L. TAYLOR, M.D., Instructor in *Clinical Gynæcology.*
GWILLYM G. DAVIS, M.D., Assistant Demonstrator of *Surgery.*
CARL H. REED, M.D., Assistant Demonstrator of *Morbid Anatomy* and *Pathological Histology.*
J. P. CROZER GRIFFITHS, M.D., Assistant to the Professor of *Clinical Medicine.*

The following Students, selected on account of their proficiency in Chemistry, act as Assistants in the Chemical Laboratory:—

Horace M. Alleman . . . . . Lafayette College.
Seneca Egbert . . . . . Princeton College.
Joseph K. Frame . . . . . Delaware College.
Randolph Faries . . . . . University of Pennsylvania.
Walton S. Greene . . . . . University of Mississippi.
John H. Nixon . . . . . Princeton College.
William C. Pierce . . . . . Philadelphia College of Pharmacy.
William A. Riegel . . . . . Pennsylvania College.
A. Livingston Stavely . . . . . Princeton College.
Joseph M. Spellissy . . . . . Georgetown College.
William S. Vanneman . . . . . Princeton College.
William L. Wilbur . . . . . Princeton College.

The following Students of the third year, selected for their proficiency in Anatomy, act as Assistant Demonstrators of Anatomy:—

John N. Baylis,	Elijah I. Kerlin,	William A. Parke,
Andrew J. Bevan,	James H. Knowles,	Allen J. Smith,
Chas. W. Burr,	Damaso T. Laine,	Harry Shoemaker,
Michael J. Donohoe,	Louis Marin,	Thompson S. Wescott,
John V. Fisher,	George M. Marshall,	R. Parks White.
Edgar M. Green,	Sherman G. T. Moyer,	
Walter D. Green,	Joseph Otto,	

The following Graduates of the School conduct the admission examinations in the several cities in which they reside:—

Dr. C. H. MASTIN, 110 St. Francis Street, Mobile, Ala.
Dr. Jos. M. TOWLER, 6 N. Main Street, Columbia, Tenn.

Digitized by Google

Dr. Eugene A. Grissom, North Carolina Insane Asylum, Raleigh, N. C.
Dr. C. D. Fishburn, 70 McMicken Avenue, Cincinnati, Ohio.
Dr. E. C. Bullard, 185 Harrison Avenue, Boston, Mass.
Dr. C. Gilman Smith, 2220 Calumet Avenue, Chicago, Ill.
Dr. C. H. Boardman, 503 Wabasha Street, St. Paul, Minn.
Dr. W. Fitz Hugh Edwards, 205 Fort Street, Detroit, Mich.
Dr. W. S. Elkin, 70½ Whitehall Street, Atlanta, Ga.
Dr. J. W. Whitbeck, 125 East Avenue, Rochester, N. Y.
Dr. W. T. Bell, City and County Hospital, San Francisco, Cal.

HOSPITAL STAFF.

WILLIAM PEPPER, M.D., LL.D., Professor of *Clinical Medicine.*
D. HAYES AGNEW, M.D., LL.D., Professor of *Clinical Surgery.*
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology.*
JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy.*
JOHN ASHHURST, Jr., M.D., Professor of *Clinical Surgery.*
WILLIAM OSLER, M.D., Professor of *Clinical Medicine.*
WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye.*
GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear.*
HORATIO C. WOOD, M.D., LL.D., Clinical Professor of *Nervous Diseases.*
LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases.*
LOUIS STARR, M.D., Clinical Professor of *Diseases of Children.*
ROLAND G. CURTIN, M.D.,
EDWARD T. BRUEN, M.D., } Assistant Physicians.
J. WM. WHITE, M.D.,
H. R. WHARTON, M.D.,
RICHARD H. HARTE, M.D., } Assistant Surgeons.
SAMUEL D. RISLEY, M.D., Assistant *Ophthalmic Surgeon.*
WALTER M. L. ZIEGLER, M.D., Assistant *Aural Surgeon.*
HENRY W. STELWAGON, M.D., Assistant *Dermatologist.*
FRANCIS H. DERCUM, M.D., Assistant *Neurologist.*
Richard T. Cadbury, Superintendent of the Hospital.
William E. Hughes, M.D., Medical Registrar.
George E. De Schweinitz, M.D., Surgical Registrar.
Henry F. Formad, M.D., Pathologist.
Judson Daland, M.D., Curator.
Gwillym G. Davis, M.D., Surgical Anæsthetizer.
W. D. Hamaker, M.D.,
E. G. Rhoads, M.D.,
F. A. Packard, M.D., } Resident Physicians.
Joseph C. Rogers, Ph. G., Apothecary.

Digitized by Google

DISPENSARY SERVICE.

SAMUEL D. RISLEY, M.D., Chief of the Dispensary for *Diseases of the Eye.*

WALTER M. L. ZIEGLER, M.D., Chief of the Dispensary for *Diseases of the Ear.*

WILLIAM L. TAYLOR, M.D., Chief of the Dispensary for *Diseases of Women.*

DE FOREST WILLARD, M.D., } Attending Surgeons in the *Orthopædic*
A. SYDNEY ROBERTS, M.D., } Dispensary.

J. WILLIAM WHITE, M.D., Chief of the Dispensary for *Venereal Diseases.*

JOHN H. MUSSER, M.D., Chief of the Medical Dispensary.

CARL SEILER, M.D., Chief of the Dispensary for *Diseases of the Throat.*

FRANCIS X. DERCUM, M.D., Chief of the Dispensary for *Nervous Diseases.*

H. W. STELWAGON, M.D., Chief of the Dispensary for *Diseases of the Skin.*

M. HOWARD FUSSELL, M.D., Assistant Physician in the Medical Dispensary.

WM. BARTON HOPKINS, M.D.,
RICHARD H. HARTE, M.D.,
CHARLES W. DULLES, M.D.,
JOSEPH M. FOX, M.D., } Attending Surgeons in the Surgical Dispensary.

WILLIAM A. DAVIS, M.D., Assistant Surgeon in the Dispensary for Diseases of Women.

JAMES WALLACE, M.D., } Assistant Surgeons in the Dispensary for
G. E. DE SCHWEINITZ, M.D., } Diseases of the Eye.

JAMES HENDRIE LLOYD, M.D., Assistant Physician in the Dispensary for Nervous Diseases.

THOMAS R. NEILSON, M.D., Assistant Surgeon in the Dispensary for Venereal Diseases.

JOHN SHEETS, M.D., } Assistant Physicians in the Dispensary for Dis-
LEDRU P. SMOCK, M.D., } eases of the Throat.

D. J. MILTON MILLER, M.D.,
WILLIAM J. TAYLOR, M.D.,
HOBART A. HARE, M.D., } Attending Physicians in the Dispensary for Diseases of Children.

FREDERIC H. MILLIKEN, M.D., Assistant Surgeon in the Orthopædic Dispensary.

WILLIAM R. HOCH, M.D., Assistant Surgeon in the Dispensary for Diseases of the Ear.

HOWARD REEVES, M.D., Assistant Physician in the Dispensary for Diseases of the Throat.

All communications should be addressed to

JAMES TYSON, M.D.,
Secretary of the Faculty of Medicine, University of Penna.,
Philadelphia, Penna.

☞ The Secretary's office is in Medical Hall, where all business is transacted.

Digitized by Google

MATRICULATES.

Fourth Year.

Buechner, William H., M.D.,	Youngstown, Ohio,	West. Res. Univ.
Dougherty, John A., M.D.,	Philadelphia,	J. Wm. White.
Sparrow, G. Byron, M.D.,	Youngstown, Ohio,	West. Res. Univ.
Stephen, George Caldwell,	Montreal, Can.,	G. B. Burland.
Welch, Harry E., M.D.,	Youngstown, Ohio,	West. Res. Univ.

Students of the Fourth Year, 5.

Third Year.

Achey, Frederick A.,	Lancaster,	H. E. Muhlenberg.
Aitken, Harry W.,	West Chester,	Isaac Massey.
Albertson, William C.,	Vienna, N. J.,	L. B. Hoagland.
Avison, David, Ph.C. (London),	Camden, N. J.,	University.
Baker, George Fales, B.S. (Univ. of Pa.),	Philadelphia,	William Hunt.
Baylis, John N.,	Bridgetown, N. J.,	University.
Beck, Charles S., Jr.,	Wilkes-Barré,	E. R. Mayer.
Benton, John W.,	Ogdensburg, N. Y.,	J. H. and C. C. Benton.
Bermudez, Salvador,	Leon, Nicaragua,	Judson Daland.
Bevan, Andrew J.,	Rosemont,	J. E. Whiteside.
Bley, Alphonso A. W., Ph.G.,	Philadelphia,	University.
Broughton, William H., Ph.B. (Delaware),	Kingston, Md.,	John Dale.
Brumbaugh, S. Oscar,	Huntington,	A. B. Brumbaugh.
Burns, Samuel W.,	Philadelphia,	University.
Burr, Charles W., B.S. (Univ. Pa.),	Philadelphia,	Judson Daland.
Carey, William A.,	Wenonah, N. J.,	J. William White.
Carle, Charles W.,	Ashley,	A. D. Tewksbury.
Carson, Alfred D., Ph.D. (Lyceum of Valparaiso, Valparaiso),	Chili,	University.
Cashman, Elmer W.,	Bendersville,	E. W. Mumma.
Chambers, Geo. H.,	Philadelphia,	E. B. Shapleigh.
Church, Joseph G.,	Girardville,	D. S. Marshall.
Cooke, Snow P., B.A. (Acadia),	Milton, Nova Scotia,	Edw. Farrell.
Crawford, James R., Jr.,	Brownsville,	W. S. Duncan.
Crilly, John C.,	Allentown,	Thomas T. Martin.
Culp, John F.,	Philadelphia,	University.
Curtis, George L., D.D.S.,	Syracuse, N. Y.,	Chas. M. Magee.
Dalbey, Alvin D., A.B. (Central High School),	Philadelphia,	University.
Dale, Frank,	Bellefonte,	University.
Diller, Theodore,	Lancaster,	M. L. Herr.
Dixon, Samuel G.,	Philadelphia,	D. Hayes Agnew.
Donohoe, Michael J., A.B.,	Waterbury, Conn.,	University.
Dorland, William A. N., A.B. (Central High School),	Philadelphia,	University.
Downing, Henry M.,	West Chester,	T. D. Dunn.
Elmer, Albert W., A.B., (Griswold College),	Davenport, Iowa,	L. French.
Emerick, Charles E.,	Centre Hall,	W. A. Jacobs.
Espinosa, Alexandro,	Managua, Nicaragua,	University.

Digitized by Google

Fisher, John V.,	Williamstown,	P. McGill.
Fitzpatrick, Charles, Jr.,	Chattanooga, Tenn.,	R. J. Levis.
Fledderjohann, Henry E.,	New Bremen, Ohio,	University.
Flexer, John R.,	Allentown,	Thomas T. Martin.
Green, Edgar M., A.B. (Lafayette),	Easton,	Traill Green.
Green, Walter D., A.B. (Princeton),	Trenton, N. J.,	W. W. L. Phillips.
Griffith, Elijah,	Pittston,	A. A. Barton.
Gross, William D., Jr., A.B. (Univ. Pa.),	Philadelphia,	University.
Hammond, Levi J.,	Dover, Del.,	T. C. Frame.
Harmon, John B.,	Altoona,	W. Y. Levengood.
Henderson, William B.,	Lewistown,	J. L. Henderson.
Hersh, Daniel G.,	East Greenville,	J. G. Hersh.
Hewetson, Halle L.,	St. Clairsville, Ohio,	A. H. Hewetson.
Hill, J. Heighe,	Locust Grove, Md.,	J. Horton Kelly.
Hillegass, John P., Jr.,	Pennsburg,	J. G. Hillegass.
Hoagland, Bonn W.	Philadelphia,	L. B. Hoagland.
Hoban, Charles J.	Scranton,	W. K. Dolan.
Hoffman, J. Louis,	Cressona,	H. C. Fegley.
Hoffman, Jacob Z., A.B.,	Maytown,	J. L. Zeigler & Son.
Holly, William J., A.B. (Yale),	Philadelphia,	University.
Hopkins, Gerald C.,	Philadelphia,	University.
Houser, Luther M.,	Houserville,	J. Y. Dale.
Humiston, Franklin G., A.B. (Dart.),	Cambridge, Mass.,	University.
Hunt, Charles, D.	Williamsport,	J. L. A. Burrell.
Jameson, William B.,	Petrolia,	W. C. Foster.
Johnson, Edwin W.,	Stockton, N. J.,	John Woolverton.
Jones, Kent C.,	Milton. Del.,	R. D. Jones.
Jones, Oliver B., Jr.,	Philadelphia,	Geo. Yeomans.
Kenney, Edward L., A.B. (Lafayette),	Chicago, Ill.,	J. L. Harvey.
Kerlin, Elijah I.,	Richmond, Ind.,	University.
Kilburn, John H.,	Woodstock, N. Br'k.,	C. P. Connell.
Kimmell, Louis J. C.,	Philadelphia,	D. Hayes Agnew.
Knowles, James H., A.B.,	Milton, Nova Scotia,	Halifax Med. Coll.
Kynett, Harry H., A.B. (Wesleyan Univ.),	Philadelphia,	Lewis D. Harlow.
Lainé, Damaso T.,	Navajas, Cuba,	University.
Lane, Samuel M.,	Orbisonia,	University.
Lee, Thomas G.,	Rochester, N. Y.,	Richard M. Moore.
Lemos, Odorico G. de,	Para, Brazil,	University.
Leopold, Isaac, B.S. (Univ. of Pa.),	Philadelphia,	Judson Daland and W. D. Robinson.
Lichty, Albert M.,	Elk Lick,	T. F. Livengood.
Long, Wilson P.,	Mertztown,	M. S. Long.
Lung, George A., A.B. (University of Rochester),	Philadelphia,	University.
Lyons, Ray,	Lanesboro,	M. L. Miller.
Macias, José J., Ph.B.,	Leon, Nicaragua,	University.
Marin, Luis, B.S.,	Leon, Nicaragua,	Jno. B. Deaver.
Marshall, George M., A.B. (Western Res. Univ.),	Painesville, Ohio,	University.

Digitized by Google

Martin, Charles B.,	Bart,	John Martin.
Matlack, Ellwood, A.B.,	Philadelphia,	University.
Mazarredo, Federico de,	Cienfuegos Cuba,	John Marshall.
Miller, Elijah,	Cold Spring, N. J.,	H. C. Wood.
Miller, R. Frank B., A.M. (Western University),	Allegheny,	Dr. Dickson.
Morris, Elliston J., A.B. (Univ. Pa.),	Germantown,	J. Cheston Morris.
Morris, William L.,	Philadelphia,	J. E. Whiteside.
Morton, Samuel W.,	Linwood,	J. Newton Walker.
Moyer, Sherman G. T.,	Pottsville,	A. H. & G. H. Halberstadt.
Murchison, John,	North River, P. E. I.	Halifax Med. Coll.
McCausland, James R., Ph.G.,	Philadelphia,	R. G. Curtin.
McFetridge, William C.,	Philadelphia,	J. H. W. Chestnut.
Negendank, Egmont T.,	Wilmington, Del.,	University.
Neuber, Samuel T., A.B. (Univ. Pa.),	Philadelphia,	University.
Nock, Thomas O., Ph.G.,	Camden, Del.,	University.
Novaes, Emygdio Dias,	Quelez, Brazil,	University.
Orbison, J. Harris, A.M. (Princeton),	Bellefonte,	University.
Otto, Joseph,	Key West, Fla.,	Guitéras & Sweeting.
Parke, William E., A.B. (Princeton),	Parkesburg,	Wiliam L. Martin.
Pascoe, George Y., Jr., A.B. (Central High School),	Philadelphia,	University.
Peters, H. Vance, A.B. (Central High School),	Philadelphia,	J. K. Knorr.
Pownall, Elmer E.,	Bridge Valley,	H. J. Neilds.
Rath, Otto A.,	Fort Wayne, Ind.,	K. K. Wheelock.
Redmond, Henry,	Corpus Christi, Tex.	L. D. Judd.
Reynolds, Leon E.,	Portland, Me.,	Yale College.
Sartain, Paul J., A.B. (Univ. Pa.),	Philadelphia,	University.
Schoales, Charles B.,	Philadelphia,	Jos. D. Schoales.
Schum, Frank L.,	Altoona,	John Fay.
Seymour, Alfred M., A.B.,	Huntington, Conn.,	F. L. Dickinson.
Sharp, Alexander A., A.B. (Dickinson),	Carlisle,	D. F. Woods.
Shimer, William S., A.B. (Central High School),	Philadelphia,	University.
Shissler, Alfred G.,	Shamokin,	C. W. Weaver.
Shoemaker, Harvey,	Philadelphia,	John B. Deaver.
Shoemaker, Jesse G.,	Philadelphia,	M. Price.
Shoemaker, Levi L., A.B. (Yale),	Wilkes Barre,	E. R. Mayer.
Shoemaker, Samuel B., B.S. (Haverford),	Germantown,	University.
Silva, Manuel C. Da,	Rio de Janeiro, Brazil,	University.
Smith, Allen J., A.B. (Penna.),	York,	Kerr & Bacon.
Snodgrass, O. Edmund,	York,	University.
Stevens, Arthur A., A.B. (Central High School),	Germantown,	University.

Digitized by Google

Stiles, William E.,	Pittston,	J. J. Walsh.
Tatum, Edward, A.B. (Yale),	New York, N. Y.,	University.
Teller, William H.,	Philadelphia,	University.
Thompson, James B.,	Allegheny City,	Chas. W. Dulles.
Thompson, William O.,	Summit Hill,	E. H. Kistler.
Tomlin, Almer N.,	Goshen, N. J.,	H. Swaim.
Wall..ce, Charles H.,	New Castle, Del.,	Jno. J. Black.
Warder, Charles B., M.D.,	Philadelphia,	W. H. Warder.
Waterhouse, Charles F., A.B.,	Cincinnati, Ohio,	J. P. Waterhouse.
Ward, E. Tillson, A.B. (Central High School),	Philadelphia,	Joseph Hearn.
Weaver, W. Warren, A.B. (Pa.),	Hanover,	G. P. Weaver.
Welker, Abram T.,	Hillegass,	H. Bobb.
Weller, Elmer K.,	Trexlertown,	William S. Herbst.
Westcott, Thompson S., A.B. (University of Pa.),	Philadelphia,	W. W. Keen.
Whitehead, John,	Trenton, N. J.,	W. Coleman.
White, R. Parks,	Ashland, Ohio,	James W. Craig.
Williams, Walter S.,	Pittsburgh,	James McCann and A. J. Givens.
Yard, John S.,	Trenton, N. J.,	J. J. B. Ribble.
Zentmayer, William,	Philadelphia,	University.

Students of the Third Year, 141.

SECOND YEAR.

Addison, Thomas G., Jr.,	Washington, D. C.,	John W. Bayne.
Agnew, Hulbert, A.B. (Princeton),	Philadelphia,	D. Hayes Agnew.
Allen, Americus R.,	Shippensburg,	S. B. Kieffer.
Andrews, George E., A.B. (Univ. of Rochester),	Granville, Ohio,	R. M. Moore.
Arnold, Ira W.,	Lancaster,	M. L. Herr.
Atlee, Wiliam A., Jr.,	Lancaster,	Jno. L. Atlee.
Balliet, Tilghman M., A.B., (Franklin and Marshall),	New Mahoning,	University.
Barney, Delbert, A.B. (Lafayette),	Wilkes-Barre,	University.
Bemish, Reuben H.,	Rochester, N. Y.,	Whitbeck & Williams
Berens, T. Passmore,	Philadelphia,	B. Berens, Jr.
Bowen, Cuthbert F., B.A. (Durham and London University),	Philadelphia,	Wm. H. Freeman.
Bowman, David P., B.E.,	Koiner's Store, Va.,	University.
Bradley, Edward T.,	Gallitzin,	Robert Devereaux.
Bradley, Wilmot V.,	New Haven, Conn.,	University.
Brinkmann, Leon,	Philadelphia,	M. Brinkmann.
Caldwell, Charles C.,	West Chester,	Thos. D. Dunn.
Cameron, George A.,	Zion, Md.,	P. B. Housekeeper.
Carlisle, Paris T., Jr.,	Frederica, Del.,	Thomas Cahall.
Cattell, Henry W., A.B. (Lafayette),	Philadelphia,	Trail Green.
Chamorro, Filadelfo, B.S.,	Granada, Nicaragua,	University.
Clarkson, J. A. Coleman, A.B. (Dickinson Seminary),	Altoona,	Jno. Fay.
Cleaver, J. Vale,	E. Bethlehem,	Q. C. Farquhar.
Clewell, Cary K.,	Telford,	J. E. Bauman.

Digitized by Google

Cooke, Edwin Stanley, A.B. (Central High School),	Philadelphia,	University.
Crandall, R. Percy,	Brooklyn, N. Y.,	T. V. Crandall and Judson Daland.
Cyphers, Millard F.,	Wilkes-Barre,	University.
Davis, James A., Ph.G.,	Greensburg,	R. B. Hammer.
Dickinson, Edward B., D.D.S.,	Chicopee, Mass.,	University.
Diverty, Henry B.,	South Dennis, N. J.,	University.
Dongion, Giragos,	Dearbeker, Armenia,	University.
Doron, John George, A.B. (Brown),	Mt. Holly, N. J.,	University.
Douglas, Malcolm, Jr.,	Philadelphia,	P. Hooper.
Edgar, Lambert H.,	Philadelphia,	J. M. Edgar.
Ely, Thomas C., Jr.,	Holmdel, N. J.,	T. V. Crandall and Judson Daland.
Farr, William W.,	Philadelphia,	J. C. Wilson.
Fell, Alexander G., B.S. (Princeton),	Wilkes-Barre,	J. A. Murphy.
Ferrer, Adolfo Leon,	Tabasco, Mexico,	University.
Frost, William M., A.B. (Dickinson),	Shamokin,	University.
Fundenberg, George B., Jr., A.B. (Western University),	Pittsburgh,	G. B. Fundenberg.
Gale, John P.,	Woodland, Cal.,	J. W. Clark.
Gallagher, Thomas D. J., A.B. (Georgetown),	Mt. Carmel,	D. J. McKibben.
Glover, George B., A.B. (Emory),	Monticello, Fla.,	Robert Battey.
Grant, Horace S.,	Navarre, Ohio,	Jas. Fraunfelter.
Grigg, Thomas A.,	Tyne Valley, P. E. I.,	University.
Hartswick, Thomas H.,	Clearfield,	J. G. Hartswick.
Hartzell, Charles A.,	Fayetteville,	M. B. Hartzell.
Head, Joseph, DD.S.,	Germantown,	N. A. Randolph.
Heisler, John Clement, Ph.G.,	Philadelphia,	University.
Henkel, Alfred Davis,	New Market, Va.,	M. A. Henkel.
Huber, William S.,	Lebanon,	Wm. M. Guilford.
Hutchinson, Randall, A.B. (Princeton),	Lawrenceville, N.J.,	University.
Johnson, Theodore M., Ph.G.,	Huntington, Ind.,	University.
Jones, Le Roy H.,	Utica, N. Y.,	Wm. & C. P. Russell.
Keller, Harry M.,	Stroudsburg,	T. C. Walton.
Kintzing, Pearce, B.S. (Lafayette),	Lock Haven,	R. Armstrong.
Kirby, Elwood R.,	Philadelphia,	University.
Knotts, Ira D.,	Davistown,	Spencer Morris.
Lacayo, Alfonso, A.B.,	Leon, Nicaragua,	University.
Lake, Wilson A.,	Green Creek, N. J.,	J. H. Ingram.
Lambach, Frederick,	Princeton, Iowa,	John Knox.
Leidy, Joseph, Jr., A.B. (Central High School),	Philadelphia,	Joseph Leidy.
Lewis, William H.,	Mt. Carmel,	W. W. Williams.
Lord, Jere W., A.B. (Johns Hopkins),	Baltimore, Md.,	University.
Marchand, Jacob F., A.M. (Wash. & Jefferson),	Irwin,	W. D. Hamaker.
Maercklein, Bernhard G.,	Milwaukee, Wis.,	University.
Martin, Peter J.J.,	Easton,	I. Ott.

Digitized by Google

Maurer, James M., A.B. (Lafayette)	Mt. Carmel,	E. Samuels.
Mial, Leonidas L., A.B. (Univ. of N. C.),	Raleigh, N. C.,	E. B. Haywood.
Miller, Louis J.,	Huntingdon,	University.
Moyer, Frederick C., Jr., A. B. (Franklin & Marshall),	Freeburgh,	University.
Moylan, Peter F.,	Pittston,	R. H. Hutchins & J. J. Moylan.
McAlister, John B., A.B. (Penna. College),	Gettysburg,	J. B. Scott.
McCauley, Charles A.,	Columbia,	F. Hinkle.
McCauley, John W., A.B. (Union College),	Stanley, N. Y.,	A. D. Allen.
McCreight, Robert, Ph.G.,	Philadelphia,	University.
Nickle, S. Pusey,	Port Deposit, Md.,	Robt. E. Bromwell.
Norris, Richard C., A.B. (Dickinson),	Washington, D. C.,	University.
Pfouts, Gilbert B.,	Philadelphia,	James Tyson.
Pyle, William L.,	West Chester,	E. W. Pyle.
Reath, Benjamin B., Jr., A.B. (Univ. of Penna.),	Philadelphia,	Richard H. Harte.
Reeder, Jeremiah V.,	Muncy,	Wood and Wiegand.
Rodgers, Robert, Jr.,	Philadelphia,	J. Howard Evans.
Roessler, George, Ph.G.,	Berlin, Germany,	Henry Beates.
Rudderow, Francis, A.B.,	Philadelphia,	B. J. Rudderow.
Salinas, Sebastian, B.S.,	Leon, Nicaragua,	University.
Schantz, William S.,	Hosensack,	I. S. Moyer.
Schell, Henry A.,	Gallatin, Tenn.,	H. A. Schell.
Smith, Joseph R.,	Wilmington, Del.,	L. H. Dravo.
Snavely, Harry B., Ph.G.,	Lancaster,	S. B. McCleery.
Spencer, Elwood P.,	Dover, Del.,	J. H. Wilson.
Sprissler, Theodore, Ph.G.,	Philadelphia,	University.
Stahl, B. Franklin, Ph.G.,	Philadelphia,	J. H. Grove.
Stein, James,	Girardville,	J. C. Biddle.
Talley, Frank W.,	Wilmington, Del.,	D. W. Maull.
Taylor, William B., A.B. (Univ. of Wooster),	Turtle Creek,	R. S. Sutton.
Townes, William C., Ph.B. (Univ. of Miss.),	Oxford, Miss.,	University.
Trout, John Harry, Ph.G.,	Landisville,	P. M. Kelly.
Turnbull, Thomas, Jr.,	Syracuse, N. Y.,	Cornell University.
Tybout, Richard Raymond,	New Castle, Del.,	Jno. J. Black & D. F. Woods.
Walker, William J.,	E. Bethlehem,	Q. C. Farquhar.
Weston, George D., B.S. (Dartmouth),	Windsor, Vt.,	Lewis D. Harlow.
Witherspoon, John A.,	Columbia, Tenn.,	Robert Pillow.
Wood, Stephen Carroll, A.B. (Yale),	Philadelphia,	Spencer Trotter.
Zuniga, Francisco J., A.B.,	Masaya, Nicaragua,	University.

Students of Second Year, 104.

Digitized by Google

FIRST YEAR.

Adler, Lewis H., Jr.,	Philadelphia,	L. H. Adler.
Alleman, Horace M., A.B. (Lafayette),	Hanover,	H. Alleman.
Andrews, Warren W., B.S. (Dickinson Seminary),	Lock Haven,	E. G. Walla.
Atwater, Edward P.,	Sydney, Aus.,	Kingsbury & Breneman.
Barberena, Narciso, B.S.,	Granada, Nicaragua,	University.
Beishlag, William P.,	Philadelphia,	University.
Bell, J. Malseed,	Philadelphia,	W. W. Keen.
Blake, Lewis J., A.B. (Wofford College, S. C.),	Spartanburg, S. C.,	University.
Bolton, Samuel, Jr., A.B. (Univ. at Lewisburg),	Philadelphia,	University.
Boquin, Francisco,	Leon, Nicaragua,	University.
Bowman, John H., B.S. (Dickinson Seminary),	Mifflinville,	J. J. Brown.
Burdict, S. Dimond,	Philadelphia,	Theo. H. Andrews.
Burger, Francis J.,	Lancaster,	A. J. Burger.
Bushong, John W.,	Philadelphia,	University.
Campbell, Thomas,	Searletown, P. E. I.,	Geo. Caruthers.
Canfield, William C.,	Bristol, R. I.,	Herman Canfield.
Carpenter, Herbert B.,	Philadelphia,	University.
Cates, Benjamin B.,	Marysville, Tenn.,	J. W. Cates.
Cawley, Morris F.,	Allentown,	J. I. Cawley.
Clarke, James C., Jr., B.S. (Dickinson),	Philadelphia,	University.
Coldren, William A.,	Van Wert,	A. J. Fisher.
Colter, Frederick G.,	Woodstock, N. B.,	N. R. Colter.
Diefenderfer, Walter B., M.E.,	Auburn,	J.T. & J.S. Carpenter.
Downs, Norton,	Germantown,	R. N. Downs.
Duer, S. Naudain, A.B. (Univ. of Penna.),	Philadelphia,	Edw. L. Duer.
Easter, Daniel M.,	Baltimore, Md.,	University.
Eckman, Philip N.,	West Pittston,	A. J. Connell.
Egbert, Seneca, A.B. (Princeton),	Franklin,	S. Bredin.
Faries, Randolph, A.B. (Univ. of Penna.),	Philadelphia,	J. Wm. White.
Frame, Joseph K.,	Millsboro', Del.,	H. G. M. Kollock.
Frey, Lewis,	Wilkes-Barre,	J. A. Murphy.
Friend, Samuel H.,	Milwaukee, Wis.,	H. M. Brown.
Gentry, Alan F., A.B. (Central High School),	Philadelphia,	University.
Gerlach, C. Rudolf,	Norristown,	Dr. Lembecke.
Gillam, William S.,	Langhorne,	Elliot Richardson.
Gill, Walter Myers,	Allegheny,	B. Kerr.
Goodwin, Eugene B.,	Kenton, Del.,	W. W. Keen & A. Goodwin.
Greenewalt, Frank L.,	Fayetteville,	Lane & Palmer.
Greene, Walton S.,	Aberdeen, Miss.,	J. M. Greene.
Green, John Traill, A.B. (Lafayette),	Easton,	Traill Green.

Digitized by Google

Griesemer, Howard,	Reading,	W. Murray Weidman
Grumbly, John A.,	Meyersdale,	S. S. Good.
Guerrero, José B.,	Managua, Nicarag.,	University.
Gummey, Frank Bird,	Germantown,	University
Hall, George Benjamin,	Renovo,	Wm. E. Hall.
Hamill, Samuel M.,	Lemont,	R. H. Hamill.
Hand, William Nelson,	Woodstock, N. B.,	C. P. Connell.
Harding, Frank H.,	Mansfield, Ohio,	R. Harvey Reed.
Hatch, John Leffingwell,	Rochester, N. Y.,	Jos. A. Biegler and Judson Daland.
Hay, Charles McKenzie,	Woodstock, N. B.,	M. T. Bruce.
Hayes, Joseph,	Spring Hill Mines, N. S.,	J. W. Cove.
Heyl, Ashton Bryant,	Philadelphia,	University.
Humphrey, Glennis E.,	Union City,	University.
Hutchison, J. Cooper, B.S. (Lafayette),	Easton,	University.
Jarecki, Edwin,	Erie,	University.
Johnson, Elmer E., A.B. (Muhlenberg),	Norristown,	B. K. Johnson and Judson Daland.
Jones, Charles J.,	Camden, N. J.,	J. Wm. White.
Kalbach, A. Frank, A.B. (Franklin & Marshall),	Philadelphia,	University.
Kelly, John J.,	Parsons,	University.
Kerns, Alvin J., B.S. (Ursinus),	Slatington,	University.
Klapp, Wilbur P.,	Philadelphia,	University.
Kleber, August C., Jr.,	Allegheny,	University.
Knoll, John G. W.,	Buffalo, N. Y.,	A. G. Gumaer.
La Farge, J. Bancel,	Newport, R. I.,	Wm. Pepper.
Landis, Eli Barr,	Lancaster,	S. T. & M. L. Davis.
Le Conte, Robert G., A.B. (Univ. of Penna.),	Philadelphia,	W. W. Keen.
Lenahan, Frank P.,	Wilkes-Barre,	C. W. Spayd.
Mackey, David,	Lewisville,	J. G. West.
Marenco, Constantine, B.S.,	Granada, Nicaragua,	Judson Daland.
Matthews, George S., A.B. (Brown),	Temple,	University.
Miller, Edwin H.,	Camden, N. J.,	University.
Miller, Milo G., A.B. (Western Univ.),	Pittsburgh,	J. N. Dickson.
Mitchell, Andrew J., A.B. (Allegheny),	Fredonia,	M. M. Magoffin.
McFarland, Joseph,	Philadelphia,	George H. Horn.
McMillan, James H., A.B. (Washington University),	St. Louis, Mo.,	University.
Newcomer, Frank S., A.B. (Lafayette),	Frankstown, Md.,	University.
Nixon, John Howard,	Wilmington, Del.,	R. J. McKay.
O'Brien, Harry J.,	St. Paul, Minn.,	C. E. Smith & E. J. Abbott.
O'Reilly, Edward A., A.B.,	St. Josephs,	E. Mulhern.
Park, Charles C.,	Pittsburgh,	Thomas Hazzard.
Parker, George Hoffman,	Bloomsbury, N. J.,	H. Servis.
Parsons, W. Otis,	Rochester, N. Y.,	C. Green.

Digitized by Google

Pennock, Walter I.,	Oxford,	University.
Perry, Charles F.,	Norristown,	J. Wm. White.
Peters, Nathaniel C.,	Siegfried's Bridge,	C. W. Sieger.
Pierce, William Chandler,	Wilmington, Del.,	University.
Post, Edward T.,	Philadelphia,	James Tyson.
Prevost, Washington Mallet,	Philadelphia,	G. Mallet-Prevost.
Randolph, Philip J. S.,	Philadelphia,	University.
Ray, Frank W., A.B., (Union Coll.)	Columbia, S. C.,	W. L. Pearson.
Rea, William F.,	Philadelphia,	Thos. G. Morton.
Riegel, William A., A.B. (Penna. Coll.),	Catasauqua,	H. H. Reigel.
Riley, Gustavus T.,	Washington, D. C.,	G. P. Fenwick.
Ross, Thomas H.,	Coudersport,	University.
Roth, Emil,	Philadelphia,	John Strobel.
Rothrock, John L., A.B. (Penna. College),	Mifflintown,	University.
Saladé, Louis Audenried, A.B. Franklin and Marshall),	Tamaqua,	R. N. Ramsey.
Schoch, Lester E.,	Philadelphia,	W. E. Hughes.
Schoch, Will E.,	Easton,	C. H. Groff.
Schroeder, Charles B., A.B. (Lafayette),	Lock Haven,	University.
Seibert, Albert A.,	Pottsville,	A. H. & G. H. Halberstadt.
Sharples, Caspar Wistar, A.B. (Oregon University),	Eugene City, Ore.,	A. Sharples.
Sharpless, William T.,	West Chester,	Isaac Massey.
Shick, William F.,	Easton,	University.
Shurtleff, Harry C.,	Philadelphia,	University.
Spellissy, Joseph M., A.B. (Georgetown University),	Philadelphia,	University.
Stanton, Howard,	Philadelphia,	John H. Packard.
Staveley, A. Livingston, A.B. (Princeton),	Lahaska,	W. R. Staveley.
Stevens, John C., B.S. (Dickinson),	Duncannon,	T. L. Johnston.
Steltz, P. Harry,	Allentown,	J. D. Christman.
Sumner, William G.,	Norwich, N. Y.,	S. M. Hand.
Taillacq, Ricardo,	Cienfuegos, Cuba,	Jno. Marshall.
Tam, John L.,	Georgetown, Del.,	J. T. Thompson.
Thomas, Thomas Brook,	Wilkes-Barre,	W. G. Weaver.
Thompson, Jesse B.,	Hurffville, N. J.,	University.
Thorn, Paul D.,	Kylertown,	Ai Thorn.
Troxell, Jere. S., Jr.,	Siegfried's Bridge,	C. W. Sieger.
Ulrich, Robert T.,	Selin's Grove,	P. A. Boyer.
Vanneman, William S.,	Salem, N. J.,	Mayhew Johnson.
Walter, Charles, A.B. (Central High School),	Philadelphia,	James Collins.
Webster, Charles F.,	Philadelphia,	University.
Webster, Cleon L.,	Nashua, N. H.,	University.
Whaley, Benton Harris,	Whaleyville, Md.,	University.
Wheeler, Harry S.,	Philadelphia,	University.
White, Abraham E., A.B., (Lincoln University),	Clinton, Miss.,	N. F. Mossell.

Digitized by Google

Wilbur, William L., A.B. (Princeton),	Hightstown, N. J.,	Lloyd Wilbur.
Wilson, Arthur L.,	Philadelphia,	C. W. Dulles.
Winston, David Y.,	Auburn, Ky.,	University.
Wolff, Bernard B.,	Philadelphia,	University.
Wood, Oran Alphonso,	Blackwood, N. J.,	Jno. D. Heritage.
Yeager, Frank N.,	Berrysburg,	E. L. Yeager.

Students of the First Year, 131.

SPECIAL STUDENTS.

Adams, Francis P.,	Philadelphia,	University.
Fetters, William A., PH.G.,	Philadelphia,	University.
Keim, William Henry,	Philadelphia,	University.
Scott, Charles G.,	Philadelphia,	University.
Van Pelt, William T., M.D.,	Philadelphia,	J. K. T. Van Pelt.

TOTAL.

Students of the fourth year	5
Students of the third year	141
Students of the second year	104
Students of the first year	131
Special Students	5
	386

The total number of new matriculates the present session, including those admitted to advanced standing, is 156.

SUMMARY.

Armenia	1	Kentucky	1	Nova Scotia	3
Australia	1	Maine	1	Ohio	11
Brazil	3	Maryland	8	Oregon	1
California	1	Massachusetts	2	Pennsylvania	243
Canada	1	Mexico	1	Pr. Edward's Island	3
Chili	1	Minnesota	1	Rhode Island	2
Connecticut	3	Mississippi	3	South Carolina	2
Cuba	3	Missouri	1	Tennessee	4
Delaware	15	New Brunswick	4	Texas	1
Dist. of Columbia	3	New Hampshire	1	Vermont	1
Florida	2	New Jersey	22	Virginia	2
Illinois	1	New York	13	Wisconsin	2
Indiana	3	Nicaragua	12		
Iowa	2	North Carolina	1	Total	386

ORGANIZATION OF THE MEDICAL SCHOOL.

This venerable Institution, the oldest of its class in the United States, was founded in 1765, by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. Through Dr. Morgan, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best

Digitized by Google

medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of Cullen, Dr. WM. SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica, and in June, 1768, a "Commencement was held" at which medical honors were bestowed, the first in point of time in America. In 1769, Dr. BENJAMIN RUSH was elected Professor of Chemistry, and Dr. THOS. BOND of Clinical Medicine.

To the Faculty thus composed of MORGAN, SHIPPEN, KUHN, RUSH and BOND, have succeeded, at various times, professors whose reputation has been national, such as: BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. ROGERS, CARSON, the elder PEPPER, FRANCIS GURNEY SMITH and NEILL.

The number of its graduates is over ten thousand.

ADMISSION.

Candidates for admission are required: *First*, to write an *Essay* (not exceeding in length a page of foolscap), as a test of Orthography and Grammar; *second*, to pass an examination in *Elementary Physics* (Part I. of Fownes's *Chemistry*). A Candidate who has received a collegiate degree, or passed the matriculate examination of a recognized college, or who has a certificate covering the *required* subjects from a recognized normal or high school, or a duly organized county medical society that has instituted a preliminary examination,—such as that adopted by the Medical Society of the State of Pennsylvania,—may enter without examination.

Students may report to the Secretary for examination at any time after the third Monday in September. Arrangements may be made for examination at other times throughout the year, upon application to the Secretary.*

The attention of those looking toward the study of Medicine is particularly called to the unusual advantages of the Course in Philosophy in the College Department of the University. Students who have pursued satisfactorily the last two years of that course will be exempted from the preliminary examination.

Students who have attended one course in a Medical School (not Homœopathic or Eclectic), are admitted to the Second Year of the University course, upon passing a satisfactory examination in *General Chemistry*, *Materia Medica* and *Pharmacy*, and the elements of *General Pathology*.

* Examinations for admission will also be held annually during the last week in June in Boston, Mass., Rochester, N. Y., Raleigh, N. C., Columbia, Tenn., Atlanta, Ga., Mobile, Ala., Cincinnati, O., Chicago, Ill., Detroit, Mich., St. Louis, Mo., St. Paul, Minn., San Francisco, Cal. The names of the examiners will be found on page 62.

Digitized by Google

Students who have attended two courses in a regular Medical School are admitted to the third year, upon passing satisfactorily an examination in *General* and *Medical Chemistry, Materia Medica* and *Pharmacy, Anatomy, Physiology* and the elements of *General Pathology.*

Graduates of regular medical schools in good standing are admitted to the *third* year without an examination. The diplomas of graduates from other schools are not endorsed by the Faculty of this school for registration except after an examination of their holders, similar in all respects, to that required of its own graduates. The fee for such examination is thirty dollars.

Graduates of Colleges of Pharmacy and Dental Colleges in good standing are admitted to the *second* year upon passing the entrance examination only.

Examinations for admission to advanced standing for Session 1886–7 will be held Tuesday, September 28th, at noon.*

COURSE OF STUDY.

The course of study earnestly recommended to students extends over four years, but the course is also arranged for three years, at the end of which the degree may be conferred. For the Fourth Year, almost wholly practical in character, a certificate is granted in addition to the diploma, to those passing a satisfactory examination in the studies of that year.

The FIRST YEAR is largely occupied with work in the various laboratories of Chemistry, Pharmacy, Osteology, Histology, and Physiology, and in Dissection. The first year student may also attend clinical lectures in general medicine and general surgery. In the SECOND YEAR, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Pathological Histology and Physical Diagnosis. Dissection is continued. Throughout the SECOND and THIRD years, the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals, and the clinics in special departments at the former. Special *bedside* instruction in Clinical Medicine, including Physical Diagnosis and Laryngology, in Surgery, and in Gynæcology is given in the third year, as well as opportunities for the practical study of diseases of the eye, ear, throat, and skin, and for acquiring proficiency with the various instruments employed. For this purpose, the third-year class is divided into sections, each of which receives direct personal instruction.

The course of instruction is so arranged as to permit mainly constant introduction of new material, while retaining the repetition of essential subjects aimed at by the old methods. The laboratory instruction is so

* Students admitted to the second year, from other colleges, who have not had instruction in Practical Histology are expected to make up such deficiency by taking a special course, as the second year's work presupposes a knowledge of the technique of the microscope.

Digitized by Google

co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

Advanced students are encouraged to make original researches in the laboratories of pharmacy, chemistry, physiology, pathology, and experimental therapeutics.

The result of the adoption of the prolonged and graded course on the composition of the classes and on their proficiency has been most gratifying. A proportion of students, much larger than ever before, have had a good education, either in colleges or in academies, and their deportment has been characterized by increased earnestness and zeal. The annual examinations have steadily advanced in grade, while those for graduation have shown a degree of merit, and the graduation Theses an amount of scientific attainment and literary culture, higher than has ever heretofore been found.

Students of the University may attend, without additional charge, the lectures and recitations in all other departments, provided that the consent of the Dean of the department has first been obtained.

OUTLINE OF THE COURSE.

FIRST YEAR.	Total hours per week.
Anatomy—3 lectures per week, 10 hours practical anatomy	13
Topographical anatomy—2 lectures per week	2
Histology—2½ hours laboratory instruction, 1 hour demonstration	3½
Materia Medica and Pharmacy—1 lecture per week, 2 hours laboratory	3
General Chemistry, including Chemical Physics—2 lectures per week, 4 hours laboratory	6
Physiology and Biology—3 lectures per week, 1 hour laboratory	4
General Pathology—1 lecture per week	1
Hygiene—1 lecture per week	1
General Clinics, Medical and Surgical	6

Final Examinations at the end of the Course: General Chemistry, Materia Medica and Pharmacy, and Elements of General Pathology.

SECOND YEAR.	
Anatomy—3 lectures per week, 10 hours evening dissection	13
Topographical Anatomy—2 lectures per week	2
Medical Chemistry—1 lecture per week, 4 hours laboratory	5
Physiology—3 lectures per week, 1 hour laboratory	4
General Pathology and Morbid Anatomy—2 lectures per week, 1½ hours laboratory	3½
Physical Diagnosis—1 lecture per week, 1 hour pratical instruction	2
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Obstetrics—2 lectures per week	2
General Clinics, Medical and Surgical	9

Digitized by Google

Special Clinics (Nervous Diseases, Diseases of Skin, Eye, Ear, Diseases of Women and Children) 5

Final examinations at the end of the Course: Anatomy, Medical Chemistry, and Physiology.

THIRD YEAR.

General Pathology and Morbid Anatomy—2 lectures per week . . . 2
Demonstrations in Morbid Anatomy—1 hour per week 1
Therapeutics—2 lectures per week 2
Theory and Practice of Medicine—3 lectures per week 3
Surgery—3 lectures per week 3
Operative Surgery, Minor Surgery, and Bandaging—1 lecture per week, 2 hours practice 3
Obstetrics—2 lectures per week 2
Operative Obstetrics—1 hour practice for half the term . . . . . ½
Diseases of Women and Children—1 lecture per week 1
*Gynæcology—1 lecture per week, 1 hour bedside teaching 2
*Bedside Instruction in Practical Medicine 1
*Bedside Instruction in Practical Surgery 1
General Clinics, Medical and Surgical 9
Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Gynæcology at both University and Philadelphia Hospitals) . . 6
Medical Jurisprudence and Toxicology 1

Final examinations at the end of the Course: General and Special Pathological Anatomy, Therapeutics, Theory and Practice of Medicine, Surgery, Obstetrics, and Diseases of Women and Children.

FOURTH YEAR.

Clinical Medicine and Physical Diagnosis, including Laryngology—2 hours clinical lecture—1½ hours practical instruction 3½
Clinical Surgery—2 hours clinical lecture, 1 hour practical instruction 3
Operative Surgery and Venereal Diseases—1 hour practical instruction 1
Nervous Diseases and Electro-Therapeutics—1 hour clinical lecture, 1½ hours practical instruction 2½
Mental Diseases—1 hour lecture 1
Gynæcology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction 3
Diseases of Children—1 hour practical instruction for half the session 1
Dermatology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction 3
Ophthalmology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction 3
Otology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction for half the session 2
Clinical and Operative Obstetrics—1 hour practical instruction for half the session . . . . . ½
Orthopædic Surgery—1 hour didactic lecture for half the session, 1 hour practical instruction for half the session 1
Medical Jurisprudence and Toxicology—1 hour lecture 1

To all Students who pursue a four years' course, and who pass a satisfactory examination in the studies of the fourth year, will be awarded a certificate in addition to the diploma. The degree of Doctor of Medicine

* For these courses the class is divided into sections, so that each student may receive direct personal instruction.

Digitized by Google

will also be conferred on graduates of other medical schools in good standing who take the third year of the three years' curriculum, or who attend the fourth year, and who pass a satisfactory examination in Morbid Anatomy, Therapeutics, Practice of Medicine, Surgery, and Obstetrics.

TEXT-BOOKS.

TEXT-BOOKS.	COLLATERAL READING.
Chemistry: Fownes's Chemistry; Muter's Analytical Chemistry.	Wurts's Elements of Modern Chemistry; Richter's Chemistry.
Materia Medica: H. C. Wood. Mann on Prescription Writing.	Wood & Bache's Dispensatory.
Anatomy: Leidy; Gray; Schaeffer's Practical Histology.	Quain; Wilson; Allen; Stricker's Histology.
Physiology: Kirke.	Carpenter; Foster.
General Pathology: Rindfleisch's Elements of Pathology, translated by Mercur; Tyson's Cell Doctrine, pp. 127–152.	

SECOND AND THIRD YEARS.

Medical Chemistry: Greene; Tyson's Practical Examination of Urine; Marshall & Smith's Chemical Analysis of Urine.	Wormley's Micro-Chemistry of Poisons; 2d edition.
Anatomy: Leidy, Gray.	Quain; Allen; Wilson; Stricker.
Physiology: Foster.	Carpenter.
General Pathology and Morbid Anatomy: Rindfleisch's Elements; Coats's Manual of Pathology.	Green, Pathology and Morbid Anatomy; Orth's Diagnosis in Pathological Anatomy; Formad's Manual of Microscopic Diagnosis, illustrated by Blackburn.
Therapeutics: H. C. Wood.	Wood & Bache's Dispensatory.
Practice of Medicine: Flint or Roberts; Bruen's Physical Diagnosis.	Pepper's System of Practical Medicine; Stille's Therapeutics; Stille's & Maisch's Dispensatory; Duhring on Diseases of the Skin; Tyson on Bright's Disease and Diabetes; Seiler, Diseases of Throat and Nose.
Surgery: Agnew; Ashhurst.	Smith's Principles and Practice; Ashhurst's International Encyclopædia of Surgery; Erichsen; Billroth's Surgical Pathology.
Obstetrics: Playfair's Midwifery.	Hodge's Obstetrics; West on Diseases of Women; West on Diseases of Children; Meigs and Pepper on Children.
Gynæcology: Goodell's Lessons in Gynæcology.	Thomas on Diseases of Women; Emmet's Practice of Gynæcology.
Medical Jurisprudence and Toxicology: Reese.	Reese's Manual of Toxicology; Taylor's Medical Jurisprudence, by Reese.

The cost of the necessary text-books is within $50, distributed over the three years.

Digitized by Google

ORDER OF LECTURES, DAILY.—FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.	Chemical Laboratory, two hrs.		Practical Biology. One section two hours.	Philadelphia Hospital, Medical and Surgical Clinics, 10 to 12.
10 A.M.		Chemical Laboratory, two hrs.		Topographical Anatomy.		
11 A.M.	Topographical Anatomy.		Hygiene.	General Pathology	Materia Medica.	
12 M.	Practical Normal Histology. One section two hours. Others Osteology or Dissection.	Practical Normal Histology. One section two hours. Others Osteology or Dissection.	Practical Normal Histology. One section two hours. Others dissect or attend Clinics, U. H.	Practical Normal Histology. One section two hours. Others Osteology or Dissection.	Practical Normal Histology. One section two hours. Others Osteology or Dissection.	Practical Biology. One section two hours. Others dissect or attend Clinics, U. H.
1 P.M.						
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.	Demonstrations in Histology.	Physiology.	
7½ to 10 P.M.	Pharmacy, Laboratory.		Pharmacy, Laboratory.			

U. H. University Hospital.

For the study of Histology, Practical Biology, Osteology and Syndesmology, the class is divided into sections, one of which is occupied at a time. Students not thus engaged, dissect, or attend Clinics.—See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8½ A.M.						Medical Chemistry, Laboratory, two hours.
9 A.M.				Medical Chemistry.	Medical Chemistry, Laboratory two hours.	
10 A.M.	Physical Diagnosis.	Physical Diagnosis.	Philadelphia Hospital, Med., Surg. and Gynæcological Clinics.	Topographical Anatomy.		Philadelphia Hosp., Med. and Surgical Clinics.
11 A.M.	Topographical Anatomy.	Morbid Anatomy.		Medical Clinic.	Morbid Anatomy.	
12 M.	Practice.	Surgery.	Practical Pathol. Histology. One section one hour. Others attend Gynæcological and General Surgical Clinic, U. H.	Surgery.	Surgery.	Practical Pathol. Histology. One section two hours. Others attend Gen. Med. and Surg. Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Practical Pathol. Histology. One section one hour. Others attend Clinic, Skin Diseases, U. H.		Practical Pathol. Histology. One section one hour. Others attend Clinic, Diseases of Eye, U. H.	Practical Pathol. Histology. One section one hour. Others attend Clinic, Nervous Diseases, U. H.	
3½ P.M.	Obstetrics.	Anatomy.	Obstetrics.	Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Phys. Diagnosis.	Physiology.	Therapeutics.	Physiology.	Therapeutics.
5½ P.M.		Practice.		Practice.		
7½ to 10 P.M.	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	Dissections.

U. H. University Hospital.

For the study of Pathological Histology and Physical Diagnosis, the Class is divided into sections, one of which is occupied at a time; those of the second-year students not thus engaged attend Clinics.

Digitized by Google

ORDER OF LECTURES, DAILY.—THIRD YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.	Demonstrations in Morb. Anat., 2 Secs.		Philadelphia Hospital, Medical, Surgical and Gynæcological Clinics.		Autopsies.	Philadelphia Hospital, Medical, Surgical and Gynæcological Clinics.
11 A.M.	Demonstrations in Morb. Anat., 2 Secs.*	Morbid Anatomy.		Medical Clinic.	Morbid Anatomy.	
12 M.	Practice.	Surgery.	Gynæcological Clinic, U. H.	Surgery.	Surgery.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H. Ward Classes, U. H.	Clinic, Diseases of the Skin, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H. Ward Classes, U. H.	Clinic, Nervous Diseases, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.
3½ P.M.	Obstetrics.	Diseases of Women and Children.	Obstetrics.	Didactic Gynæcology, U. H.	Didactic Dermatology.	Med. Jurisprudence.
4½ P.M.	Operative Surgery and Bandaging, Lecture.	Didactic Ophthalmology, U. H.	Didactic Otology, until Jan. 1st., U. H. Orthop. Surg., after Jan. 1st.	Therapeutics.	Practical Surgery, Two Sections, two hours.	Therapeutics.
5½ P.M.	Practical Surgery, Two Sections. Oper. Obstetrics, Sections, after Jan. 1st.	Practice.		Practice.	Operative Obstetrics, Sections, after Jan. 1st.	

U. H. University Hospital.

For WARD CLASS instruction the third-year class is divided in sections. See SPECIAL ROSTER.

*After Jan. 1st, sections not thus engaged attend, at this hour, the CLINIC ON DISEASES OF CHILDREN BY PROF. STARR.

Digitized by Google

ORDER OF LECTURES, DAILY.—FOURTH YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.		Mental Diseases.	Philadelphia Hospital, Medical, Surgical and Gynæcol. Clinics.		Autopsies.	Philada. Hospital Clinics. After Jan. 1st, Practical Instruction, Pædiatrics.*
11 A.M.	Clinical Medicine.			Medical Clinic.		
12 M.	Practical Instruction, Skin Diseases, U. H.	Practical Gynæcology. U. H.	Gynæcological Clinic, U. H.	Practical Instruction Orthopædics, until Jan. 1st, U. H. Practical Laryngology after Jan. 1st, U. H.	Clinical Surgery, U. H.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Clinic, Diseases of the Skin, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H.	Clinic on Nervous Diseases, U. H.	Surgical Clinic, U. H.
2½ P.M.				Practical Ophthalmology, U.H.		
3½ P.M.		Practical Instruction Nervous Diseases, U. H.	Electro-Therapeutics, U. H., until Jan. 1st. Prac. Instruct., Otology, U. H., after Jan. 1st.	Didactic Gynæcology, U. H.	Didactic Dermatology.	Medical Jurisprudence.
4½ P.M.	Operative Obstetrics, until Jan. 1st.	Didactic Ophthalmology, U. H.	Didactic Otol., until Jan. 1st, U. H. Orthopædic Surgery, after Jan. 1st.		Venereal Diseases, until Jan. 1st. Operative Surgery, after Jan. 1st.	

U. H. University Hospital.

Digitized by Google

ROSTER OF BEDSIDE INSTRUCTION AND SPECIAL CLINICS FOR STUDENTS OF THE THIRD YEAR, SESSION 1885–6.

For attendance upon these Courses, the Third Year Class is divided into four sections, A, B, C, and D, which attend as follows:—

First Period, from Friday, Oct. 2d, to Tuesday, Nov. 17th, inclusive.

	Monday.	Tuesday.	Thursday.	Friday.
Prof. Goodell	A	—	B	C
" Ashhurst	B	C	D	—
" Osler	C	B	—	D
Special Clinics	D	A & D	A & C	B & B

Second Period, from Thursday, Nov. 19th, to Thursday, Jan. 14th, inclusive.

Prof. Goodell	B	—	C	D
" Ashhurst	C	D	A	—
" Osler	D	A	—	C
Special Clinics	A	B & C	B & D	A & B

Third Period, from Friday, Jan. 15th, to Tuesday, March 2d, inclusive.

Prof. Goodell	C	—	D	A
" Ashhurst	D	A	B	—
" Osler	A	C	—	B
Special Clinics	B	B & D	A & C	C & D

Fourth Period, from Thursday, March 4th, to Friday, April 16th, inclusive.

Prof. Goodell	D	—	A	B
" Ashhurst	A	B	C	—
" Osler	B	D	—	A
Special Clinics	C	A & C	B & D	C & D

The instruction is given at the University Hospital at 1 o'clock. Professor Osler meets the sections of the Third Class in the Front Ward, Gibson Wing; Prof. Goodell in the Lower Lecture Room; and Prof. Ashhurst in the Front Ward, first floor. The Special Clinics are held in the Upper Lecture Room.

This arrangement enables each section to attend, during an equal portion of the term, the clinical lectures on special subjects, as follows:

1 P.M.

Monday.	*Tuesday.*	*Thursday.*	*Friday.*
Prof. STRAWBRIDGE.	Prof. DUHRING AND Dr. STELWAGON.	Prof. NORRIS.	Prof. WOOD.
Otology.	*Dermatology.*	*Ophthalmology.*	*Nervous Diseases.*

Digitized by Google

The entire Third Year Class will attend the General Medical, Surgical, and Gynæcological Clinics, held on Wednesday and Saturday, from 12 to 2 o'clock, in the Upper Lecture Room; also Medical Clinic on Thursday, at 11 o'clock, and the Demonstrations in Morbid Anatomy by Prof. Tyson and Dr. Formad at 10 and 11 o'clock on Monday.

SPECIAL ROSTER OF LABORATORY INSTRUCTION IN HISTOLOGY, BIOLOGY, OSTEOLOGY, AND SYNDESMOLOGY, FOR STUDENTS OF THE FIRST YEAR, SESSION 1885-6.

For instruction in these Laboratories the First Year Class is divided into four sections, A, B, C, D, which attend as follows:—

1st Period.		*From October 2d to November 17th, inclusive.*					
		Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Histology,	*Sec.* A	12 to 2	12 to 2	12 to 2	12 to 2	12 to 2	——
Osteology,	B	12 to 1	12 to 1	——	12 to 1	12 to 1	——
Biology,	C	——	——	——	——	9 to 11	12 to 2
2d Period.		*From November 19th to January 14th, inclusive.*					
Histology,	*Sec.* B	12 to 2	12 to 2	12 to 2	12 to 2	12 to 2	——
Osteology,	C	12 to 1	12 to 1	——	12 to 1	12 to 1	——
Biology,	D	——	——	——	——	9 to 11	12 to 2
3d Period.		*From January 15th to March 2d, inclusive.*					
Histology,	*Sec.* C	12 to 2	12 to 2	12 to 2	12 to 2	12 to 2	——
Osteology,	D	12 to 1	12 to 1	——	12 to 1	12 to 1	——
Biology,	A	——	——	——	——	9 to 11	12 to 2
4th Period.		*From March 4th to April 16th, inclusive.*					
Histology,	*Sec.* D	12 to 2	12 to 2	12 to 2	12 to 2	12 to 2	——
Osteology,	A	12 to 1	12 to 1	——	12 to 1	12 to 1	——
Biology,	B	——	——	——	——	9 to 11	12 to 2

All students not occupied in the Laboratory of Normal Histology or Osteology dissect from 12 to 2 daily.

GRADUATION.

At the close of the third year, a student who has passed all examinations satisfactorily, receives the degree of Doctor of Medicine on the following conditions:

I. He must be of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of

Digitized by Google

the curriculum; and his last course of instruction must have been at this School. (A Thesis is no longer required, but students are recommended to prepare Theses in competition for the various Prizes.)

III. After notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

IV. He must be present at Commencement, unless excused by the Faculty.

ADDITIONAL INSTRUCTION.

In addition to the required Course and to the voluntary fourth year, Clinics, both general and special, and Lectures, both Theoretical and Practical, are continued after Commencement until the middle of June. All subjects connected with the fundamental departments of medicine, or with its several subdivisions, as determined by usage, are thoroughly taught in one or other of these courses; and it is strongly urged upon all students, especially those of the second and third years, to continue their studies during the spring and summer, and, by all means, to pursue the studies of the fourth year.

ARRANGEMENT OF SESSIONS.

The Academic Year is divided into two Sessions: the WINTER SESSION, which is preceded by an INTRODUCTORY COURSE of two weeks, and the SPRING SESSION.

The SPRING SESSION 1886 begins Monday, May 10th, and continues until the middle of June.

The INTRODUCTORY COURSE for the Sessions of 1886–7 begins Wednesday, September 15th.

The WINTER SESSION 1886–7 begins on Friday, October 1st, and ends at Commencement, on Monday, May 3d, 1887.

For Fees, Expenses, etc., see p. 140.

SCHOLARSHIPS.

A competitive examination of candidates to fill six free scholarships is held annually. (In 1886, on Friday, September 24th, at 12 o'clock, noon.) The candidates will be required—

First. To furnish satisfactory evidence that they are without means to defray the expenses of a medical education.

Second. To write a brief autobiography, not exceeding a page of foolscap, which will serve as a test of their qualifications in orthography and grammar.

Third. To pass a written examination in Latin prose translation on the first three books of Cæsar, and a written examination in Physics, which may

Digitized by Google

embrace questions relating to the general properties of matter, Mechanics, Heat, Light, and Electricity. The examination is not confined to the subject matter of any text-book, but Balfour Stewart's Physics covers the ground as nearly as any.

Fourth. They will be required to pay an examination fee of $5, which is not returned, but is transferred to the matriculation fee in the case of the successful candidates.

Candidates who propose to present themselves for examination will send their names, accompanied by the necessary certificate required by the first condition, to the Secretary of the Faculty of Medicine, *before September 15th*, and appear without further notice.

FACILITIES FOR INSTRUCTION.

The instruction in the Medical Department is conducted in the MEDICAL HALL, the LABORATORY BUILDING, and the HOSPITAL OF THE UNIVERSITY.

The Medical Hall contains the Wistar and Horner Museum, the Histological, Osteological, Physiological, Pathological, and Pharmaceutical Laboratories, and the Stillé Medical Library.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, has been annually augmented, and is unequalled in the United States for the number and variety of its specimens illustrating the normal and morbid anatomy of every part of the human body. It also contains a large number of preparations in comparative anatomy, and an extensive collection of models, used in illustrating the lectures. The Museum is open on Wednesdays and Saturdays, from 9 A.M. to 12 M., throughout the session, to matriculated students.

THE CABINET OF MORBID ANATOMY, collected by Dr. George B. Wood, and given by him to the University, contains an extensive series of wet preparations, drawings, and models in wax and other materials, a collection unrivalled in extent and value, for illustrating diseases of the internal organs and of the skin.

The late distinguished Professor of Obstetrics, Dr. Hugh L. Hodge, enriched the facilities of Instruction in that special branch by the gift of his valuable Cabinet.

Through a like liberality of Dr. Henry H. Smith, Emeritus Professor of Surgery, and of the late Professor of Clinical Surgery, Dr. John Neill, the University has a further extensive and valuable gift of morbid specimens, models and drawings.

THE HISTOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy, and the direct guidance of the Demonstrators of Histology. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the first course student to become practically familiar

with the most approved methods of microscopical technology, as well as with the Normal Histology of all the tissues and organs. During the spring months it is open for those who desire a course embracing those refinements and minutiæ, which of necessity are omitted in the regular winter's work. Especial facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

THE OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor and Demonstrator of Anatomy. The first year student is required, in this Laboratory, to make himself familiar with the skeleton and the articulations, as a part of his instruction in practical anatomy.

THE PHYSIOLOGICAL LABORATORY is under the personal supervision of the Professor of Physiology and the Demonstrator. It is furnished with every form of apparatus likely to be used by the practical physiologist. An elementary practical course in physiology, designed especially for first year students who are deficient in preliminary training in Biology, is continued throughout the Session; while every facility is afforded advanced students and graduates pursuing special studies in that subject. The Laboratory is open throughout the year, except during July and August.

THE PATHOLOGICAL LABORATORY, under the direction of the Professor of General Pathology and Morbid Anatomy, and the Demonstrator of Pathological Histology, was opened in 1874, and attracts, from remote sections of the country, a large number of physicians and students who desire special preparation in Microscopic Technology, Normal and Pathological Histology, and Experimental Pathology. It is furnished with microscopes, and all appliances requisite for practical study and for original research.

This Laboratory is also supplied with a complete outfit for the investigation of Bacteria in their relation to infectious diseases, and for the study of the lower fungi.

Each student of the second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in Pathological Histology, in Mycology, and in the microscopy of urine.

Each student of the third year receives advanced practical instruction in Morbid Anatomy, and in the making of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, along with the microscopic sections, are features of this course.

The practical work, during the regular winter session, is obligatory on students of both the second and the third year.

Special instruction and guidance in original research are given by the demonstrators to advanced students.

The laboratory is open throughout the year, except during July and August.

Digitized by Google

THE PHARMACEUTICAL LABORATORY is in charge of the Professor of Materia Medica and Pharmacy, and the Demonstrators of Pharmacy. It is furnished with tables and all necessary apparatus. In it the student learns not only the various pharmaceutical processes, but also that familiarity with drugs which can be acquired only by handling them.

THE LABORATORY OF EXPERIMENTAL THERAPEUTICS, under the direction of the Professor of Materia Medica and Therapeutics, is furnished with all apparatus and instruments necessary for the study of the physiological action of medicines.

THE DEPARTMENT OF PRACTICAL OBSTETRICS is under the care of the Professor of Obstetrics, and the Demonstrator. It includes operations on the cadaver and with the manikin, while lying-in cases are given to advanced students.

THE STILLÉ MEDICAL LIBRARY, founded by Professor Alfred Stillé, now contains over four thousand volumes. During the Winter and Spring Courses it is accessible to advanced students and graduates of the Medical Department under appropriate regulations.

THE LABORATORY BUILDING.

The first floor is arranged for the Operating Room or Infirmary of the Dental Department, and has the necessary waiting-rooms, etc., carefully adapted to the requirements of this department. The entrance is on Spruce Street.

The second and third floors are fitted up as chemical laboratories; on the second is the laboratory of General Chemistry, and on the third that of Medical Chemistry. In addition to the main room, on each story, there are four balance rooms, provided with instruments for attaining accuracy in Chemical research.

The fourth floor is occupied by the Dissecting Room.

CHEMICAL LABORATORIES.—The Working Laboratories for Practical Chemistry are under the supervision of the Professor of Chemistry and the Demonstrator, with assistants. Students of the First Year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his tests.

Students of the Second Year devote four hours per week to practical work in the Laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric

Digitized by Google

Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and complex mixtures.

Dissecting Room.—In constructing the new Dissecting Room of the University, care was taken to provide everything that experience suggested as being necessary or desirable. The room is at the top of the Laboratory Building, and is one hundred and forty feet in length, by forty feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. The tables have stone tops, which cannot absorb moisture and can be kept perfectly clean. There are numerous washstands and private closets for the use of each student. Cleanliness is rigidly enforced. The preservation of the cadaver has been so successfully accomplished as almost to do away with the dangers of dissecting wounds. Dissection is legalized in Pennsylvania.

The Room is open throughout the year except in July and August, under the superintendence of the Professor of Anatomy and the Demonstrators.

Practical Surgery.—The application of bandages and dressings, and surgical operations on the cadaver are a part of the practical instruction to students of the Third Year, under the supervision of the Professor and Demonstrators of Surgery. Instruments, splints, and bandages are supplied without expense to the student.

THE UNIVERSITY HOSPITAL.

The University Hospital, constructed according to the best established principles of hospital architecture, is provided with all the appliances pertaining to such institutions of the best class. It is adjacent to the new Medical Hall, and forms an integral portion of the Medical Department. In its various departments, during 1884, there were treated 8776 cases, an increase of more than 1000 over 1883, and representing almost all of the known medical, surgical, and gynæcological affections. Owing to its situation within a very short distance of numerous railroads, the Hospital is preeminently the refuge of cases of severe injury, and of acute surgery. Attendance on the Clinical Instruction given in its amphitheatres and its wards is a part of the daily duty of the students, and ample opportunities are afforded to the more advanced among them to gain a personal and practical acquaintance with Clinical Medicine, Surgery, Gynæcology, and the Specialties. These subjects are taught by the several Clinical Professors.

The new wing in the University Hospital, for chronic diseases, especially of the heart and of the lungs, is completed and thereby unusually good opportunities are afforded for the study of these important affections. This wing has been erected by the liberality of Mr. Henry C. Gibson; and its

Digitized by Google

hundred beds are rapidly being endowed by friends of the University. The Peter Hahn Ward, endowed by the late Dr. George B. Wood, has been opened for the admission of patients.

The resident physicians of the University Hospital are every year selected by competitive examination from among the graduating class of the University. The next examination will be held Tuesday, April 27th, 1886 at 12 M.

OTHER HOSPITALS AND HOSPITAL CLINICS.

In addition to the official clinical lectures and bedside instruction delivered at the University Hospital, medical students have the opportunity of attending clinical lectures in other Hospitals and in private classes formed for the special study of disease.

Close to the grounds of the University is the PHILADELPHIA HOSPITAL with its thousand beds. Here are delivered twice a week Clinical Lectures on Medicine, Surgery, and the Diseases of Women and Children. Lectures on Clinical Medicine and Surgery are also delivered twice a week during the greater part of the year by the Medical Staff of the PENNSYLVANIA HOSPITAL. Instruction in Clinical Surgery and Children's Diseases is given, too, at the CHILDREN'S HOSPITAL. To these institutions students are admitted without charge, except at the Pennsylvania sHospital, where a small fee is now required.

During the spring and summer *private* classes are also formed for Clinical Instruction, for which a moderate fee is charged.

Appointments of RESIDENT PHYSICIANS, amounting to twenty-five or more, are made annually in the different Hospitals of the city. With one or two exceptions these positions are now filled by *competitive examination of candidates.*

From the preceding summary it is evident that a prolonged residence in Philadelphia must be of the utmost value to the student, by enabling him to pursue a systematic course of study and to become practically familiar with the scientific methods of investigating disease, and with the principles and results of its treatment.

STILLE MEDICAL SOCIETY AND H. C. WOOD MEDICAL SOCIETY.

These Societies are composed of Second and Third year students. Their meetings are held once a week during the winter session for the reading and discussion of papers referring to the theory and practice of medicine.

Digitized by Google

PRIZES.

Two Prizes, one of One Hundred Dollars, one of Fifty Dollars, will be awarded to the members of the Graduating Class of 1885–86 for the best Essays upon Medical subjects, provided such Essays are of sufficient merit.

One of these prizes has been instituted by the Society of the Alumni of the Medical Department of the University; the other by a friend of the University.

A Prize of Thirty Dollars is also awarded by the Demonstrator to the member of the Graduating Class who shall present the best record of the anomalies found in the anatomical rooms.

A Prize of Fifty Dollars is offered by Dr. Henry Beates, Jr., a graduate of the School, to the candidate receiving the highest average at his final examination.

Morbid Anatomy Prize.—A prize of a Zentmayer's Histological Microscope is annually awarded by the Professor of General Pathology and Morbid Anatomy for the best thesis on any subject connected with Pathology or Morbid Anatomy, illustrated by a set of not less than twelve microscopical preparations. The Essay must be presented as competing for the prize.

The names of those to whom the prizes are awarded are announced at the Annual Commencement of the Medical Department.

The address of the Secretary is Medical Department of the University of Pennsylvania, Philadelphia, Penna. His office is in Medical Hall, *where all business is transacted.*

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence* and *Toxicology*.
SAMUEL B. HOWELL, M.D., Professor of *Mineralogy* and *Geology*.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of *Botany*.
JOSEPH G. RICHARDSON, M.D., Professor of *Hygiene*.
ANDREW J. PARKER, M.D., Ph.D., Professor of *Comparative Anatomy* and *Zoölogy*.

J. T. ROTHROCK, *Dean*.

MATRICULATES.

Baylis, John N.,	Bridgeton, N. J.
Benton, John W.,	Ogdensburg, N. Y.
Bowen, Cuthbert Fitzgerald, B.A.,	Philadelphia, Pa.
Bricker, Wm. H.,	Philadelphia, Pa.
Crawford, Jas. R.,	Brownsville, Pa.
Diverty, H. B.,	South Dennis, N. J.
Fitzpatrick, Charles F.,	Chattanooga, Tenn.
Gale, John P.,	Memphis, Mo.
Gill, W. M.,	Allegheny, Pa.
Hatch, John L.,	Rochester, N. Y.
Humphrey, G. E.,	Union City, Pa.
Kirby, Ellwood R.,	Philadelphia, Pa.
Landis, Eli B.,	Lancaster, Pa.
Miller, Milo G.,	Pittsburgh, Pa.
Morton, Samuel W.,	Linwood, Pa.
Park, Charles C.,	Pittsburgh, Pa.
Pownall, Elmer E.,	Bridge Valley, Pa.
Reeder, J. V.,	Muncy, Pa.
Rodgers, Robert, Jr.,	Philadelphia, Pa.
Stahl, B. Franklin,	Philadelphia, Pa.
Turnbull, Thomas, Jr.,	Syracuse, N. Y.
Ward, E. Tillson,	Philadelphia, Pa.
Weller, Elmer K.,	Trexlertown, Pa.

Total, 23.

Digitized by Google

The Auxiliary Faculty of Medicine supplements the customary winter course of medical instruction, by lectures on collateral branches of Science essential to the thorough education of the physician. The course is essentially post-graduate. There can be no matriculation until the student has entered upon his third year of medical study. His second year in this department should be taken in connection with the fourth year of medical instruction for which the University now provides.

The session for 1886–87 will begin on Friday, October 1st, and continue until the early part of May.

The matriculation book will be closed after November 1st, except to such students as show the Dean good reasons for longer indulgence.

FEES.

The lectures are free to the medical students, and medical graduates, of this University. Other matriculates pay fifteen dollars for each professor's course, or thirty-five dollars for all the courses. The graduation fee is ten dollars.

DEGREES.

This Faculty no longer recommends students for the degree of Doctor of Philosophy (Ph.D.); but a graduate in Medicine of this University, or of other Medical Schools on its *ad eundem* list, who has attended two full courses of instruction in this Auxiliary Department, has presented an *original thesis* on one of the subjects taught, and has passed a satisfactory examination, will receive the degree of Bachelor of Science (B.S.), on complying with the following conditions:

(1) When applying for examination the candidate must exhibit his medical diploma to the Dean, and show that he has paid all University dues.

(2) The thesis must be presented to the Dean, and the graduation fee be paid by the 15th day of May.

Candidates must be present at Commencement unless excused by the Faculty.

SPECIAL STUDENTS.

The lectures and laboratories of this Department are open, also, to those not engaged in the Study of Medicine. Admission may be obtained from the Dean, either to the whole course of Lectures, or to Lectures on a single branch. These students receive no degrees, though the Faculty may give certificates of attendance.

PRIZES.

(1) The GEORGE B. WOOD PRIZE, founded by the Alumni Association of the Auxiliary Department of Medicine, is bestowed annually upon the

Digitized by Google

candidate who passes the best examination, and presents the best original thesis on an experimental subject, satisfactory to the Faculty.

(2) Messrs. R. & J. BECK, opticians, through their manager, W. H. Walmsley, offer at the coming session, one of their new "Ideal" microscopes, complete, of the value of seventy-five dollars, to the author of the best and most practical paper illustrative of any Department of Natural History, preference being given to Human Anatomy and Botany, worked out by the aid of the microscope, and accompanied by prepared objects or drawings.

MUSEUM.

The Museum of the Auxiliary Department of Medicine contains three thousand mineral specimens systematically arranged; a collection of rocks, fossils, and casts, arranged according to their geological succession; a valuable philosophical apparatus; a growing collection of specimens of Comparative Anatomy and Zoölogy; chemical preparations and apparatus illustrative of Toxicology; diagrams, etc. These collections are arranged in the rooms of the Faculty.

COURSE OF STUDY.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.—Subjects of legal medicine on which the physician may be called upon to give evidence in a court of justice:—

Signs of Death; Personal identity (*identification of the living and the dead*); Feigned Diseases; Violent Deaths (*homicidal* and *suicidal*) from (a) *wounds;* (b) *hanging;* (c) *strangling;* (d) *suffocation;* (e) *drowning;* (f) *heat;* (g) *cold;* (h) *starvation;* (i) *lightning;* (k) *poisoning.*

Infanticide and criminal abortion; Signs of Pregnancy and of Delivery; Legitimacy; Rape; Survivorship.

The Jurisprudence of Insanity (*civil* and *criminal responsibility; feigned insanity; rights of the insane; plea of insanity as a bar to judicial punishment*).

The Legal Rights and Liabilities of Physicians; Medical Experts—their rights and compensations.

Life Insurance in its medico-legal relations.

Medical Malpractice.

Poisoning, with special reference to *testing;* modes of procedure in order to determine the presence of poisons in cases of homicide and suicide.

MINERALOGY.—First Year: Instruction by Lectures and Text-book study, giving leading facts and principles as a branch of general education, and also preparing for practical application to Geology. This includes crystallography, physical and chemical properties of minerals, classification and description of all the leading species, with a complete collection to illustrate these teachings. In the Laboratory the student learns blowpipe analysis to determine minerals. Use of the spectroscope is taught. The examination is both written and oral, with practical determinations.

Digitized by Google

GEOLOGY.—Second Year: Lectures and practical work. This includes lithological classification, stratification or bedding, fossiliferous and unfossiliferous rocks, origin of rocks, denuding agents, dissolved matter extracted by the agency of animals and plants, derivative rocks and their relations to the history of the globe, present positions of rocks, present interior and exterior conditions of the earth, causes of upheaval and contortion, origin of heat required for volcanic energy and metamorphism, changes of climate, mineral springs, geographical distribution of disease realms, soils in relation to malaria, drainage basins and lines, permeability of rocks as related to discharge of rivers, character of river water as depending upon chemical composition of rocks, and outlines of historical geology. The practical work in the laboratory includes plotting from field notes, location of outcrops, construction of sections, reports on districts visited by students, description of strata, and determination of rocks and fossils.

BOTANY.—First Year: Instruction is by Lectures upon structural and physiological botany; and also as time permits, upon properties of plants. Second Year: Instruction by laboratory exercises in vegetable histology and in analytical botany. Such students as are far enough advanced, can also receive instruction in methods of study and in life-histories of the lower forms of plant life.

There is an examination at the end of each year.

Under proper restriction a large herbarium is available to advanced students, for purpose of critical comparison of plants.

HYGIENE.—Sanitary science, especially in the direction of Preventive Medicine, has advanced so rapidly during the past few years, that in this brief course only the more important subjects can be treated of in detail. Particular attention is directed to the practical application of sanitary knowledge, in accordance with the standard of efficient requirement in this branch, justly demanded by the Illinois and other State Boards of Health.

1. Nature, causes, mode of propagation, and prophylaxis of preventable diseases—heredity and other modifying influences which affect their development—avoidance or control of maladies by quarantine, disinfection, isolation, etc. 2. Special prophylactic measures and hygienic management of cholera, typhoid fever, small-pox, glanders, trichiniasis and the disturbances of health produced by parasites. 3. Analysis of air; sanitary meteorology; heating and ventilation; examination of drinking water; drainage and sewerage. 4. Food and drink as conditioning *all* physical and mental manifestations of vitality; impurities, deteriorations and adulterations of food,—their effects upon the human organism,—means of detecting their existence, and obviating their injurious action. 5. Principles of hospital construction; military, naval, school, industrial and personal hygiene.

COMPARATIVE ANATOMY AND ZOOLOGY.—1. An outline of the classes of animals. 2. A succinct account of their anatomy and embryology. 3. Explanation of "varieties" of human anatomy, and the proper method of studying malformations. 4. A description of human parasites. 5. An account of the more important sources of those articles of the materia medica which are derived from the animal kingdom.

Digitized by Google

The principal text-books used are:—

Taylor's *Medical Jurisprudence* (American edition by Reese).
Reese's *Manual of Toxicology.*
Reese's *Medical Jurisprudence and Toxicology.*
Dana's *System of Mineralogy.*
Elderhorst's *Manual of Qualitative Blowpipe Analysis.*
Dana's *Manual of Geology.*
Ganot's *Éléments de Physique*, translated by Atkinson.
Gray's *Text-Book of Botany*, Vols. 1 and 2.
Gray's *Manual of Botany.*
Parkes' *Manual of Hygiene.*

Works of reference:—

Wharton and Stillé's *Medical Jurisprudence.*
Taylor's *Medical Jurisprudence.*
Tidy's *Legal Medicine.*
Sach's *Text-Book of Botany.*
Le Maout and Decaisne's *General System of Botany, Descriptive and Analytical.*
Cooke and Berkely on *Fungi.*
Wilson's *Manual of Hygiene.*
Buck's *Hygiene and Public Health.*
Pavy or Chambers on *Diet.*
Mivart's *Elements of Anatomy.*
Nicholson's *Manual of Zoology.*
Gegenbaur's *Elements of Comparative Anatomy.*
Balfour's *Comparative Embryology.*

Digitized by Google

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS.

RICHARD WOOD, PRESIDENT.
WM. F. NORRIS, M.D., VICE-PRESIDENT.
HORACE Y. EVANS, M.D., SECRETARY.
WHARTON BARKER, TREASURER.

WM. PEPPER, M.D., LL.D., PROVOST.

ON THE PART OF THE CONTRIBUTORS TO ENDOWMENT FUND.

ISAIAH V. WILLIAMSON, JOHN WANAMAKER,
SAMUEL ASHHURST, M.D., W. F. NORRIS, M.D.,
THOMAS DOLAN, JAMES B. LEONARD,
WM. C. ALLISON.

ON THE PART OF THE BOARD OF TRUSTEES.

RICHARD WOOD, G. D. BOARDMAN, D.D., LL.D.,
JAS. H. HUTCHINSON, M.D., WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.

ON THE PART OF THE FACULTY.

JOSEPH LEIDY, M.D., LL.D., JOHN ASHHURST, JR., M.D.,
THEODORE G. WORMLEY, M.D., LL.D.

ON THE PART OF THE ALUMNI.

HORACE Y. EVANS, M.D., RICHARD A. CLEEMANN, M.D.,
SAMUEL S. STRYKER, M.D.

CHAIRMEN OF STANDING COMMITTEES.

ON FINANCE: JOHN WANAMAKER.
ON PROPERTY AND REPAIRS: J. H. HUTCHINSON, M.D.
ON SUPPLIES: HORACE Y. EVANS, M.D.
ON LIBRARY AND MUSEUM: EDWARD HARTSHORNE, M.D.*

* Deceased, 1885.

Digitized by Google

The *Medical Staff* and *Officers* of the Hospital are given on page 26.

The UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between 34th and 36th Streets, and Spruce and Pine Streets, given by the City of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction, in 1874. In 1882, a new wing was added through the liberality of Mr. Henry C. Gibson for patients suffering from Chronic Diseases.

The MAIN BUILDING, besides the offices and the rooms of the officers, has a large clinical Amphitheatre, which will seat six hundred students, and a smaller one for one hundred and fifty. It also has ten rooms for private patients. The wing adjoining has five wards, with a capacity of one hundred and ten patients, and four private rooms. The wing for Chronic Diseases has room for sixty-two patients in its six wards. There is therefore full accommodation for one hundred and eighty-six patients. In the basement are surgical and medical dispensaries, and nine special dispensaries for out-door patients. In connection with the Orthopædic Dispensary is a work-shop, in which braces and other appliances are made.

The hallways are well-lighted and spacious; and can be used as wards, should there be any sudden demand which the capacity of the regular wards could not meet.

The Hospital is also well adapted to purposes of teaching; a large proportion of the instruction given to the students in the Medical School is given here, as will be seen by reference to the rosters.

In 1884, the fourteen hundred patients treated in the Hospital, and the seven thousand three hundred out-patients in the Dispensaries, furnished ample material for Clinical Instruction.

All cases of accident, occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night. An ambulance will be sent for them, if notice is given by telephone or messenger.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the Department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is $7.00 a week; in the private rooms, of which there are fourteen, the prices range from $12.00 to $25.00 a week. The friends of the patients can be accommodated in the Hospital, under certain circumstances, but it is better for them to board in the neighborhood, where rates range from $4.50 a week upwards.

Digitized by Google

No patient with acute venereal disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon. There are special departments for mania-à-potu patients.

Visitors are admitted to see patients in the private rooms at all times.

Visitors are admitted to the wards on week-days between 2 and 4 P.M. Under no circumstances are they admitted on Sunday, except in the case of near relatives of patients whose condition is very critical.

There are elected annually from the graduating class of the Medical School three Resident Physicians, who come on duty for one year at intervals of four months.

There were 1409 cases treated in the hospital, and 7367 in the dispensaries during the year 1884. Of the hospital cases there were:

Left over from 1883,	76	
New entries,	1333	
		1409
Pay patients,	289	
Free "	582	
Recent accidents,	538	
		1409

CASES TREATED IN DISPENSARIES.

	Cases.	Visits.
Surgical,	1143	3605
Medical,	1600	5239
Eye,	917	
Nervous,	382	1372
Throat and Nose,	831	3608
Gynæcological,	620	1840
Skin,	445	1880
Venereal,	319	1467
Children's,	525	
Orthopædic,	201	1160
Ear,	384	
	7367	

Prescriptions put up for dispensaries, ... 10,186.

An Annual Report of the Hospital is published, giving minute statistics of the year. Copies can be had on application to

R. T. CADBURY,
Superintendent.

Digitized by Google

DEPARTMENT OF DENTISTRY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST and *ex-officio* President.

CHARLES J. ESSIG, M.D., D.D.S., Professor of *Mechanical Dentistry* and *Metallurgy*.

EDWIN T. DARBY, M.D., D.D.S., Professor of *Operative Dentistry* and *Dental Histology*.

JAMES TRUMAN, D.D.S., Professor of *Dental Pathology, Therapeutics* and *Materia Medica*.—SECRETARY.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.

——— ———, Professor of *Physiology*.*

THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry*.

ROBERT HUEY, D.D.S., Lecturer on *Operative Dentistry*.

LOUIS JACK, D.D.S., Lecturer on *Operative Dentistry*.

CLINICAL INSTRUCTORS.

DR. C. S. BECK,
DR. GEO. W. KLUMP,
DR. W. G. A. BONWILL,
DR. W. R. MILLARD,
DR. R. R. UNDERWOOD,
DR. E. H. NEALL,
DR. H. C. REGISTER,
DR. J. A. WARDELL,
DR. J. A. WOODWARD,
DR. H. C. LONGNECKER.

DEMONSTRATORS.

WM. DIEHL, D.D.S., Demonstrator of *Operative Dentistry*.

WM. LEWIS CAVE, D.D.S., Demonstrator of *Mechanical Dentistry*.

J. JUDSON EDWARDS, D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.

JOSEPH W. NOBLE, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

LUTHER H. GRAVES, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

GEO. G. MILLIKEN, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

JOHN MARSHALL, M.D., NAT.SC.D., Demonstrator of *Practical Chemistry*.

JOHN B. DEAVER, M.D., Demonstrator of *Anatomy*.

---

* This Course is given by Dr. E. T. Reichert. See page 60.

Digitized by Google

MATRICULATES.

SECOND YEAR.

Abarca, Filadelfo,	Rivas, Nicaragua,	University.
Adams, James E.,	Paris, Illinois,	Ball & Whiteside.
Aguilar, Arturo,	Leon, Nicaragua,	University.
Bennefeld, Albert F.,	Berlin, Germany,	Professors Miller & Paetsch.
Borden, Walter A.,	Allentown, N. J.,	University.
Bordner, Charles M.,	Berrysburg,	A. W. Hafer.
Bradley, Wilmot V.,	New Haven, Conn.,	Elias Strong.
Calves, Antonio D.,	Havana, Cuba,	University.
Campbell, John,	Philadelphia,	Goddard & Fox.
Chambers, William M.,	Philadelphia,	Wm. Chambers.
Cookingham, George T.,	Lee, Mass.,	S. K. Saunders.
Danel, William W.,	Freeport, Ills.,	Kingsley, Allen & Sunderland.
Davis, Charles H.,	New Ipswich, N.H.,	H. W. Watkins.
Dennison, James S.,	Geneva, N. Y.,	C. A. Slocum.
Dumas, Victor,	Santiago, Cuba,	University.
Ensign, Charles L.,	Norwich, N. Y.,	M. O. Randall.
Fuller, Dwight B., Jr.,	Philadelphia,	G. G. Milliken.
Griffin, Frank R.,	Bellefontaine, Ohio,	A. E. Griffin.
Hammer, William J.,	Greensburg,	University.
Hammond, Julian T., Jr.,	Frankford,	University.
Hawke, Wm. Wetherill,	Hopewell, N. J.,	P. J. Wilson.
Hills, J. Bartlett,	Washington, D. C.,	Thos. O. Hills.
Howland, Frank H.,	Worcester, Mass.,	A. A. Howland.
Huber, William S.,	Lebanon,	W. A. Huber.
Hurlburt, H. Duane,	St. Albans, Vt.,	University.
Lamadriz, Estanislao,	Matanzas, Cuba,	University.
Lamoutte, Luis Alfredo,	Ponce, Porto Rico,	University.
Long, W. Laurence,	Honeybrook,	H. C. Longnecker.
McIntyre, Alexander A.,	Summerside, P.E.I.,	T. H. Heckman.
Maercklein, Bernhard G.,	Milwaukee, Wis.,	University.
Maercklein, Reinhold E.,	Milwaukee, Wis.,	B. G. Maercklein.
Mergelkamp, Guillermo,	Trujillo, Peru,	University.
Miller, Louis J.,	Huntingdon,	University.
Nittinger, Alfred,	Philadelphia,	S. D. Strohm.
Paranhos, José,	Porto Alegre, Brazil,	Primo & Moura.
Pereira, Francisco,	Pelotas, Brazil,	University.
Pitts, John R.,	Philadelphia,	University.
Quick, E. Payson,	Philadelphia,	Jacob Quick.
Raupp, Octavio B.,	Porto Alegre, Brazil,	University.
Rees, Chas. Hanson,	Winchester, Ky.,	B. G. Rees.
Richter, Charles H.,	Milwaukee, Wis.,	R. G. Richter.
Robson, Thomas C.,	Philadelphia,	Thos. Robson.
Schwarzschild, Ferdinand,	San Francisco, Cal.,	Univ. of Michigan.
Seelye, Henry G.,	Middlebury, Conn.,	F. E. Howard.
Shannon, George H.,	Watertown, N. Y.,	J. D. Huntingdon.
Smith, Franklin A., Jr.,	Philadelphia,	University.
Sumner, Frederick I.,	Norwich, N. Y.,	C. G. Sumner.
Upp, Charles W.,	Freeport, Ills.,	Kingsley, Allen & Sunderland.

Digitized by Google

Webb, Albert T.,	Freeport, Ills.,	W. H. Taggart.
Wible, John H.,	Greensburg,	Z. L. Waugaman.
Wiggins, Leslie M.,	Central Norton, N.B.,	University.

Students of the Second Year, 51.

FIRST YEAR.

Amend, Frederick W.,	Philadelphia,	University.
Arnold, William F.,	Rochester, N. Y.,	University.
Bentzen, Michael H.,	Bergen, Norway,	University.
Bowers, George A.,	Nashua, N. H.,	Geo. Bowers.
Codman, Charles A. E.,	Philadelphia,	University.
Darrell, Oliver D.,	Washington, D.C.,	H. B. Noble, Jr.
Deming, Fay H.,	Sheldon, Vt.,	J. M. Comegys.
Despeaher, Felix J.,	Orsay, France,	University.
Doherty, Robert P.,	Kingston, N. B.,	University.
Dunn, Thomas J.,	Philadelphia,	University.
Duthiers, Georges L.,	Port-au-Prince, Hayti,	University.
Elliott, Walter V.,	Mansfield,	University.
Fahnestock, Charles C.,	West Chester,	G. G. Cardwell.
Ferguson, Frank L.,	Lena, Ills.,	University.
Fernandez, y Lombard, Emeterio,	Jovellanos, Cuba,	Franc. Cataneo.
Garesche, Arthur F.,	Cardenas, Cuba,	Geo. H. Chance.
Gibbons, J. Murray,	Brighton, England,	S. C. Gibbons.
Hall, Carroll,	Philadelphia,	University.
Herbein, Isaac W.,	Sinking Spring,	H. J. Herbein.
Hill, William W.,	Washington, Ga.,	J. B. Ficklen.
Howe, John B.,	Ithaca, N. Y.,	F. S. Howe.
Hurlock, John,	Chestertown, Md.,	J. Jones.
Johnson, W. Howard,	Milton,	U. G. Beck.
Jones, William L., Jr.,	Philadelphia,	University.
Keim, Milton N.,	Philadelphia,	Milton Keim.
Meisburger, Louis C. J.,	Buffalo, N. Y.,	University.
Milliken, James A.,	Philadelphia,	G. G. Milliken.
O'Malley, John F.,	Wilkes-Barre,	J. McDougall.
Outcault, Charles W.,	Lancaster, Ohio,	M. Palmiter.
Pancoast, Samuel A.,	Ashtabula, Ohio,	Edw. Kelley.
Paris, Louis J.,	Philadelphia,	University.
Paxson, Alfred,	West Chester,	G. G. Cardwell.
Payne, Ralph G.,	Cattaraugus, N. Y.,	C. J. Ellis.
Pérez, Eduardo A.,	Guayaquil, Ecuador,	University.
Powel, Milton,	Philadelphia,	University.
Randall, John W.,	Norwich, N. Y.,	A. E. Bradley.
Reap, Joseph C.,	Pittston,	J. McDougall.
Rehfuss, William F.,	Philadelphia,	Thos. Robson.
Seip, Howard S.,	Allentown,	University.
Swing, R. Hamill D.,	Coatesville,	W. H. Shannon,
Tees, Ambler, Jr.,	Philadelphia,	Ambler Tees.
Uhler, Orandus H.,	Easton,	S. P. Uhler.
Van Deursen, George L.,	Paris, Ills.,	University.
Wall, Richard J.,	Hummelstown,	J. B. Crist.
White, Joseph W.,	Philadelphia,	University.
Zayas, Fernando Arturo de,	Matanzas, Cuba,	University.

Students of the First Year, 46.

Digitized by Google

Students of the Second Year	51
Students of the First Year	46
Total	97

SUMMARY.

Brazil	3	Hayti	1	Norway	1
California	1	Illinois	5	Ohio	3
Connecticut	2	Kentucky	1	Pennsylvania	38
Cuba	7	Maryland	1	Peru	1
District of Columbia	2	Massachusetts	2	Porto Rico	1
Ecuador	1	New Brunswick	2	Pr. Edward's Island	1
England	1	New Hampshire	2	Vermont	2
France	1	New Jersey	2	Wisconsin	3
Georgia	1	New York	9		
Germany	1	Nicaragua	2	Total	97

COURSE OF STUDY.

The Course extends over two years, and in each year there are two Sessions, the Winter and the Spring. By this arrangement, students are spared the necessity of securing a preceptor during their stay in the city; the Faculty deem attendance during the spring and summer months equivalent to private instruction. *Such attendance, however, is not to be considered in any way a substitute for the Winter Session.*

During the Winter Session the following is the arrangement of studies:

FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.	Chemical Laboratory.	Mechanical Clinic.	Mechanical Clinic.	
10 A.M.	Mechanical Clinic.					
11 A.M.		Chemical Laboratory.				
12 M.						
1 P.M.		Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.					Clinic.
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
5½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology, Therapeutics and Materia Medica	

The curriculum of the first year is identical for Medical and Dental students as far as Anatomy, Chemistry, and Physiology are concerned.

Digitized by Google

SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.
10 A.M.						
11 A.M.						
12 M.			Univ. Hosp. Clinics.			
1 P.M.		Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.					Clinic.
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
5½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology, Therapeutics and Materia Medica.	

In order to facilitate work in the practical departments, and to give full employment to the student, the morning hours of the first year are devoted equally to dental and chemical laboratory work.

During the second year the student has the entire forenoon of each day for practical dental work. Ample opportunity is afforded for practice in operative and mechanical dentistry.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth, their component tissues, a full description of the materials and instruments used in operative dentistry, a thorough elucidation of all dental operations, such as filling, extracting, regulating, the pathological relations of the teeth to the other parts of the system, and a minute description of all special diseases related to dental surgery, or of interest to the dentist. The methods taught are demonstrated in clinics.

The instruction in MECHANICAL DENTISTRY AND DENTAL METALLURGY embraces the proper fitting up of a dental laboratory; the use of tools; the melting, refining, alloying and working of metals and alloys used by the dentist; the chemical and physical properties of materials pertaining to ceramic dentistry, their preparation, and the most approved formulas for compounding bodies and enamels for the manufacture of block teeth and continuous gum work; the history and properties of all substances used in

Digitized by Google

making artificial dentures; as well as the mechanical treatment of cleft palate, including the several methods of constructing obturators for such cases, whether congenital or acquired. The lectures in this department also include every approved mechanical means of correcting irregularities of the teeth, and are amply illustrated by specimens, models, diagrams, and practical application in the laboratory, under the supervision of accomplished mechanical dentists. Special attention will be directed to the higher branches of plate work, the continuous gum process, and carving teeth.

Every student is required to furnish his own bench tools for metal and rubber work, and will be provided with a place in which they can be locked when not in use.

The lectures in CHEMISTRY embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds, and of the fundamental principles of organic chemistry, including the classification of organic compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

The course in practical chemistry in the laboratory includes exercises in chemical manipulation, the study of the chemical properties of the principal metals, and the reactions of acids and their combinations, and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds which are of interest to practitioners in all branches of medicine. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the direction of demonstrators, as well as to exhibit by formulas, on paper, all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the departments of medicine, including dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, large and well-executed models, and drawings.

The course on PHYSIOLOGY includes lectures, with demonstrations, on the entire human physiology and on physiological chemistry. The study of the physiology of each organ is preceded by a full consideration of its histology. The course is amply illustrated by appropriate diagrams, chemico-physiological experiments, and vivisections.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects taught. Dentition, and its possible pathological results, receives careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable, the character—normal and abnormal—of the oral se-

Digitized by Google

cretions, and the direct and remote relations which the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes by which to secure a return to normal conditions, are minutely detailed.

MATERIA MEDICA will be taught with special reference to the character and value of those remedies that have any bearing upon dental therapeutics.

CLINICAL INSTRUCTION.

Four hours daily (except Saturday) are spent in actual practice under the supervision of the Demonstrators. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use. In the operating room, wires are arranged to a number of the chairs for the use of electric pluggers.

INFIRMARY AND LABORATORY.

The Infirmary and Laboratory are open to the students for practice, under the supervision of competent demonstrators. During the Winter Session, a Clinical Lecture is given and operations performed by one of the Professors on Saturday.

THE STILLÉ MEDICAL LIBRARY.

This Library, founded by Professor Alfred Stillé, for the purpose of promoting scientific research and literary culture, contains upwards of four thousand volumes. During the Winter and Spring Sessions it is open to students and graduates of the Dental Department under appropriate regulations.

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, and annually augmented, is unequalled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy, a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc., and an extensive collection of models, which are used in illustrating the course of lectures. It is open every Wednesday and Saturday from 9 A.M. to 12 M., throughout the sessions. The matriculation fee in this Department confers admission to the Museum.

Digitized by Google

SESSIONS.

The *Spring Session*, 1886, begins on Monday, May 10th, and ends the 15th of June. The work of this session is entirely practical; no lectures are delivered.

The *Introductory Session* begins on Thursday, September 16th, and is free to those who enter for the winter session.

The *Winter Session*, 1886–87, begins on Friday, October 1st, 1886, and ends on May 1st, 1887.

EXAMINATIONS.

At the close of the first year, examinations in Chemistry and Materia Medica are held, which if the student fail to pass, a second examination is afforded him at the beginning of the next winter session.

The final examination is in Anatomy, Physiology, Operative Denistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty, will be admitted to the graduating class without examination, upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

DEGREES.

At the close of the second year, after passing satisfactorily all examinations, the student will receive the degree of Doctor of Dental Surgery (D.D.S.), under the following regulations:

I. The candidate must be of age, and must have attended two full winter sessions,—the second, in this institution.

II. He must have dissected at least two parts; and have performed thoroughly and to the satisfaction of the Professor of Operative Dentistry all the usual dental operations; and must undertake at least one artificial case, and bring it completed, with the patient, to the Professor of Mechanical Dentistry, thirty days before the close of the term; and must

Digitized by Google

prepare for presentation to the Professor of Mechanical Dentistry, before the 1st of April, a specimen case to be deposited in the College collection. The operations as well as the work on the artificial case must be performed at the College building.

Students of Dentistry, who wish the degree of Doctor of Medicine also, can take a three years' course; but they must notify the Secretary of the Department of Medicine of their intention before the beginning of the second session. They must then add to the studies of the second year, Medical Chemistry, General Pathology and Morbid Anatomy, Therapeutics, Theory and Practice of Medicine, Surgery, and Obstetrics, with Clinics, medical and surgical. At the end of this year they are examined in Medical Chemistry, Anatomy, and Physiology, in addition to the dental branches. If qualified, they receive the degree of D.D.S., and pass to the Third year in medicine.

To such graduates the Spring course is open for practice at the chair, or in the dental laboratory, free of additional charge.

In the third year they take the studies of the third year of the medical course, and at the end of the year pass an examination in Therapeutics, General Pathology and Morbid Anatomy, Theory and Practice of Medicine, Surgery, and Obstetrics.

TEXT-BOOKS AND WORKS OF REFERENCE.

On Operative Dentistry and Dental Histology: Harris's *Principles and Practice;* Tomes's *Dental Surgery;* Taft's *Operative Dentistry;* Tomes's *Dental Anatomy.*

On Mechanical Dentistry and Metallurgy: Richardson's *Mechanical Dentistry;* Wildman's *Instruction in Vulcanite Work;* Kingsley's *Oral Deformities;* Essig's *Dental Metallurgy.*

On Anatomy: Leidy's *Elementary Treatise on Human Anatomy;* Gray's *Anatomy;* Stricker's *Manual of Histology.*

Dental Follicle: Legros and Magitot, translated by M. S. Dean.

On Chemistry: Fownes's or Wurtz's *Chemistry;* Wormley's *Micro-Chemistry of Poisons;* Muter's *Analytical Chemistry.*

On Physiology: Foster's *Physiology* with Frey's *Compendium of Histology;* Tyson's *Cell Doctrine;* Carpenter's *Physiology,* by Smith.

On Materia Medica: H. C. Wood's *Therapeutics;* Geo. B. Wood's *Therapeutics;* Wood and Bache's *Dispensatory.*

On Surgery: Agnew's *Surgery;* Ashhurst's *Surgery;* Billroth's *Surgical Pathology.*

For Fees, Expenses, Boarding, etc., see pp. 142, 143.

Third year medical students who have graduated in the Department of

Digitized by Google

Dentistry are entitled to the use of the Operative Clinics and the Dental Laboratory free of charge.

Further information may be obtained from

JAMES TRUMAN, *Secretary*,
3249 Chestnut Street, Philadelphia, Pa.

The subjoined reports give some conception of the character, and of the mass of work performed in the Operative and Mechanical Departments; but the amount of costly material and of careful attention necessary for the insertion of 4380 gold fillings can be appreciated only by the experienced operator. The packing of seventy-two ounces of gold, used during the session, represents a very large amount of valuable work performed.

The number of patients (4898), exhibits not only a gratifying confidence in the management of these departments, but also the value of the service to a large class of persons of limited means.

OPERATIVE DEPARTMENT.

Number of Patients	4898
Gold Fillings	4380
Tin "	655
Cement "	941
Amalgam "	132
Gutta Percha "	561
Canal "	100
Pulps capped	91
" devitalized	47
" extracted	28
Artificial Crowns	38
Pulpitis	11
Treatment Pulp Canals	221
Pericementitis	5
Alveolar Abscess	3
Inflammation of Gums	1
Pyorrhœa Alveolaris	3
Irregularities Corrected	4
Salivary Calculi	102
Teeth and Roots extracted	3241
Total,	10,564

MECHANICAL DEPARTMENT.

Number of patients	313
Full cases	160
Partial "	112
Pirot teeth	42
Repairing cases	12
Regulating "	3
Total,	392

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

RUSH SHIPPEN HUIDEKOPER, M.D., V.S., DEAN OF THE FACULTY, Professor of *Internal Pathology*, and *pro tempore* Professor of *Veterinary Anatomy*.

JAMES TYSON, M.D., Professor of *General Pathology and Morbid Anatomy*.

HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy*, and *General Therapeutics*.

THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry* and *Toxicology*.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.

ANDREW J. PARKER, M.D., PH.D., Professor of *Comparative Anatomy* and *Zoology*.

ROBERT MEADE SMITH, M.D., Professor of *Comparative Physiology*.

WILLIAM L. ZUILL, M.D., V.S., Professor of *Surgical Pathology* and *Obstetrics*.

DEMONSTRATORS.

HENRY F. FORMAD, M.D., Demonstrator of *Pathology* and *Morbid Anatomy*.

WILLIAM B. ROGERS, D.V.S., Demonstrator of *Veterinary Anatomy*.

JOHN MARSHALL, M.D., NAT.SC.D. (Tübingen), Demonstrator of *Practical Chemistry*.

ALEXANDER GLASS, V.S., Demonstrator of *Therapeutics, Materia Medica*, and *Pharmacy*.

GARRETT EDWARDS, *Farrier*, Demonstrator of *Forging* and *Horseshoeing*.

R. S. HUIDEKOPER, M.D., V.S., *Dean of the Faculty*,
36th and Pine Sts., Philadelphia, Pa.

Digitized by Google

MATRICULATES.

Second Year.

Apeldorn, Theodore W.,	Philadelphia.
Birch, William A.,	Philadelphia.
Cullen, Charles M.,	Philadelphia.
Eves, Hiram P.,	Lima.
Formad, Robert,	Philadelphia.
Hare, Hobart A. (M.D.), B.S.,	Philadelphia.
Harger, Simon,	Hecktown.
Hickman, Richard W.,	Bustleton.
Lintz, Charles,	Holmesburg
Marlin, Edgar,	Philadelphia.
Montgomery, William B.,	Chestnut Hill.
McAnulty, James T.,	Philadelphia.
Parker, Andrew J. (M.D.),	Philadelphia.
Sellers, Albert T.,	Philadelphia.
Vandegrift, John F.,	Langhorne.
Webster, Richard G.,	Media.
Williams, Charles,	Fellowship, N. J.

First Year.

Bachman, B. Frank,	Strasburg.
Balzer, Helmuth C.,	Meriden, Conn.
Boon, George M.,	Philadelphia.
Breisacher, Leo, Jr.,	Detroit, Mich.
Burns, Joseph M.,	West Chester.
Earley, Thomas B.,	Philadelphia.
Felton, Howard B.,	Olney.
Flower, Richard,	Ashbourne.
Garrett, Caspar,	Lansdowne.
Gatchel, Enoch M.,	West Chester.
Hartman, Guldin R.,	Philadelphia.
Kearney, George W.,	West Chester.
Lincoln, William R.,	Philadelphia.
Lusson, Louis O.,	Philadelphia.
Maurise, Antoni,	Philadelphia.
Pleibel, Victor,	Philadelphia.
Reefer, Leon. N.,	Meadville.
Schick, Charles E.,	Philadelphia.
Schreiber, Albert F.,	Philadelphia.
Staub, Jacob B., Jr.,	Nicetown.
Tintsman, John Z.,	Philadelphia.
Tully, Edgar W.,	Philadelphia.
Werntz, William B.,	Philadelphia.

Special Students.

Lovett, John F.,	Philadelphia.
Ridge, William Hodgson,	Trevose, Penna.

Total.

Students of the Second year	17
Students of the First year	23
Special Students	2
	42

Digitized by Google

This Department provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its Courses extend from the first elements of Medicine to the latest researches in this branch of Science at home and abroad, while at every step the student is drilled under the personal guidance of Professors, in all the practical and technical details of the Profession. Too much stress cannot be laid on the importance of thus combining, at every step, Theory and Practice, inasmuch as it is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology, problems, which owing to the lack of communication between the Physician and the patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

The BUILDINGS are erected in what is to be the Botanical Garden of the University, and, with a street frontage of over 600 feet, consist of a spacious Amphitheatre, Dissecting Room, Histological Laboratory, Hospital, with hot and cold and steam baths for horses, Blacksmith shop with eight forges, Pharmaceutical Laboratory, etc., etc. The floors are laid in cement, with the most approved drainage. The Hospital is capable of accommodating over fifty animals.

Candidates for admission are required: *First*, to write an essay (not exceeding a page of foolscap), which may serve as a test in orthography and grammar; *second*, to pass an examination in elementary Physics (Part I. of Fownes's *Chemistry*). Candidates who have either received a collegiate degree, or passed the matriculate examination of a recognized college, or who have a certificate covering the required subjects from a recognized Normal or High School, or a duly organized County Medical Society that has instituted a preliminary examination,—such as that adopted by the Medical Society of the State of Pennsylvania,—may enter without examination.

The Course of Instruction extends over three years, with one session from the first of October to the last of June in each year. The following are the studies:

THE FIRST YEAR:—*Chemistry, Materia Medica and Pharmacy, Physiology, Histology, Botany, Zoology, Veterinary Anatomy, and Forging.*

SECOND YEAR:—*Medical Chemistry, Physiology, Therapeutics, General Pathology and Morbid Anatomy, Veterinary Anatomy, Surgical Pathology, Internal Pathology and the Contagious Diseases, Botany, Zoology, and Practical Farriery.*

THIRD YEAR:—*Therapeutics, General Pathology and Morbid Anatomy, Surgical Pathology and Operative Surgery, Internal Pathology and the Contagious Diseases, Sanitary Police, Obstetrics, and Zootechnics.*

In the Second Year the student will attend clinics, and will serve as aid

Digitized by Google

in the hospital; in the Third Year he will be placed in charge of sick animals, and be required to prepare clinical reports and make autopsies. He will, also, make regular visits to breeding and dairy farms and to slaughter-houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher-meat.

Examinations will be held at the close of each year, in which the student must duly pass before he is allowed to proceed to the studies of the next year. At the close of the Course, and after passing a satisfactory examination, the student receives the degree of *Veterinariæ Medicinæ Doctor* (*V.M.D.*).

Expenses:—Matriculation Fee (paid once only), five dollars. Tuition Fee, annually, one hundred dollars.

For further information address:

R. S. HUIDEKOPER, M.D., V.S., *Dean of Veterinary Department, University of Pennsylvania.*

Digitized by Google

DEPARTMENT OF BIOLOGY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy;* Director of the Biological Department.
JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany.*
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology.*
BENJAMIN SHARP, M.D., Ph.D., Professor of *Invertebrate Morphology.*
N. ARCHER RANDOLPH, M.D., Instructor in *Physiology.*
CHARLES S. DOLLEY, M.D., Instructor in *General Biology.*
HORACE JAYNE, M.D., *Secretary.*

MATRICULATES.

FIRST YEAR.

George Fetterolf,	Philadelphia.
Milton J. Greenman,	North East, Pa.
Edward H. Hance, Jr.,	Germantown.
Robert S. Maison,	Philadelphia.
Hyland C. Murphey,	Philadelphia.
George Petry,	Philadelphia.
Frank R. Remont,	Philadelphia.
William H. Salter,	Philadelphia.
George Sinnamon,	Philadelphia.
Marcus A. Weems,	Columbia, Tex.
Richard Wilson,	Philadelphia.

SECOND YEAR.

George Q. Horwitz,	Philadelphia.
Ida Keller,	Philadelphia.
Samuel S. Kneass,	Philadelphia.
Charles P. Mercer,	Philadelphia.
William C. Posey,	Philadelphia.
Joseph Sailer, Jr.,	Philadelphia.
Joseph P. Tunis,	Philadelphia.
John Weiszgerber,	Philadelphia.
Jane J. Wetherell,	Philadelphia.
Charles B. Williams,	Philadelphia.

PARTIAL STUDENTS.

M. A. Campbell,	Philadelphia.
Frank H. Carothers,	San Antonio, Tex.
Howard G. Chase,	Philadelphia.
Mary G. Connell,	Philadelphia.
H. Augusta Kimball, M.D., B.S.,	Philadelphia.
Thomas Newlin,	Haverford, Pa.

Digitized by Google

The aim of this Department is:

1. To conduct the Biological studies of the students in a course in Philosophy for Undergraduates.

2. To provide a course of instruction in Biology for students of both sexes who are preparing to study medicine, or who desire systematic training in this subject.

3. To afford advanced instruction to graduates who are candidates for the degree of Doctor of Philosophy. (See page 119.)

4. To encourage original research in Biology by offering facilities to scientists engaged in investigation, and by giving aid and instruction to advanced students prosecuting special work.

The new LABORATORY building, erected for the use of this Department, contains a lecture-room, two large laboratories for undergraduate Biological work, rooms for the Zoological and Botanical collections and libraries, laboratories for advanced and special work in Botany, Zoology, Histology, Embryology, and Physiology, besides private laboratories for the use of the instructors, and rooms for Photography, with ample space for the Aquaria, Animals, and storage.

Proper and abundant MATERIAL is furnished to students engaged in special work. A supply of the ordinary forms used in the practical laboratory exercises is kept, as far as possible, in the building.

An excellent COLLECTION of skeletons, typical forms, and dissected preparations is formed, and a fine Herbarium, containing about forty-five thousand specimens, is deposited in the building.

A good working LIBRARY, containing important Text-books and complete sets of many valuable Journals, has been provided. The large public libraries of the city are, under regulations, open to students. The Academy of Natural Sciences, with its rich museum and large library, the most complete in Biology in the country, is accessible to students, without charge.

1. COURSE FOR STUDENTS IN THE COLLEGE DEPARTMENT.

Instruction in Biology forms a part of a Course in Philosophy in the College Department. For details of this course, admissions, examinations and degrees, see page 50.

2. GENERAL COURSE IN BIOLOGY.

This course forms an important branch of modern general culture, and also furnishes a peculiarly appropriate and valuable preparation for the study of medicine.

The course extends through two years of two terms each:—

Digitized by Google

FIRST YEAR.

GENERAL BIOLOGY.—Vegetal Biology. Animal Biology. (Lectures and practical work.) Huxley's and Martin's *Elementary Biology*. Bessey's *Botany*. Brooks's Handbook of *Invertebrate Zoology*. Parker's *Zootomy*. (6*)

MAMMALIAN ANATOMY.—(Lectures and laboratory exercises.) Mivart's *The Cat*. Wilder's *Anatomical Technology*. (4)

BOTANY.—Systematic Botany. (Practical exercises.) Gray's *Botanical Text-book*. Gray's *Manual of Botany*. (4)

SECOND YEAR.

BOTANY.—1. (*a*) Medical Botany; the plants used in medicine, adulteration of foods and drugs, or (*b*) Vegetal Morphology. 2. The life-histories of plants. (Practical exercises.) Bessey's *Botany*, Sach's *Text-book of Botany*. (4)

ZOOLOGY.—The outlines of General Zoology and Comparative Anatomy. The classification and distribution of animals. (Lectures.) Claus's *Elementary Text-book of Zoology*. Gegenbauer's *Comparative Anatomy*. (2)

ANIMAL HISTOLOGY.—(Lectures and laboratory exercises on Microscopic Anatomy.) Schäfer's *Essentials of Histology*. (4)

EMBRYOLOGY.—Lectures and laboratory exercises on the development of the Chick. Foster and Balfour's *Elementary Embryology*. (4)

PHYSIOLOGY.—The Elements of Physiology. (Lectures and practical work.) Dalton's *Physiology*.

The instruction in General Biology is in the form of practical laboratory exercises accompanied by explanatory lectures, and comprises the study of the structure, functions and development of a series of plants and animals. The student in this manner gains a general knowledge of the Vital phenomena, manifested in the different forms of living matter, before beginning the special study of either Botany or Zoology. The series studied are, (1) Amœba, Paramœcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life. (2) Moulds, Chara, Braken-fern and Bean-plant as exhibiting the structure and activities of Plants. (3) These compared with Sponge, Hydra, Starfish, Earthworm, Leech, Cyclops, Crayfish, Cockroach, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, Pigeon, and Rabbit as Animals.

The course in Mammalian Anatomy consists of lectures on the methods of anatomical investigation, a detailed description of the anatomy of one of

* The numeral indicates hours per week.

Digitized by Google

the higher mammals, and comparisons with human anatomy. In the laboratory the class carefully dissects the Cat.

The work in Botany, during the *First Year*, consists in exercises in the determination and classification of plants, and begins in the second term after the student has finished the first half of the course in General Biology, and has acquired a sufficient knowledge of vegetal structure and physiology. In the first term of the *Second Year* some choice is permitted. The student may take up Medical Botany, if intending to study medicine, or may devote his attention to more advanced work in plant structure. During the second term the life-histories of plants, their development, growth, and reproduction are studied.

General Zoology and Comparative Anatomy embrace the study of individuals and colonies; cells and cell aggregates; a short account of the tissues; growth and division of labor; organs, their structure; reproduction, general facts of embryology; metamorphosis, alternation of generation, polymorphism, and heterogony; systems of classification; the Darwinian theory; species and varieties; a succinct account of the various groups of animals, their anatomy, development, and distribution.

Histology is taught, during the first term in the second year, mainly by practical work with the microscope. The structure of animal tissues and organs and the methods of examining and preparing microscopic specimens are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Embryology of the Chick, with laboratory exercises in the preparation and study of the principal stages of development.

The instruction in the elements of Human and Comparative Physiology embraces the study of the phenomena of nutrition, of food-stuffs and digestion; circulation; respiration; reproduction; muscular action, including locomotion, speech, etc.; and the functional activity of nerve and brain.

3. INSTRUCTION FOR GRADUATE STUDENTS.

Students in the Department of Philosophy, who have selected Botany or Zoology as the main subject in their course for the degree of Doctor of Philosophy, and who have had the requisite training, will, on entering, begin original investigation for the required graduation thesis. If not sufficiently prepared for this work, or if Botany or Zoology, or both, have been selected as subordinate studies, the students are advised to take the General Course in Biology, or such portions of it as may be deemed necessary. The conditions of entrance, fees, examinations, and degrees are set forth in the Department of Philosophy.

Digitized by Google

4. INVESTIGATION AND ADVANCED INSTRUCTION.

Scientists engaged in the investigation of any subject in Biology can be accommodated in the laboratory by permission of the Faculty. A moderate fee will be charged for the use of the rooms and apparatus, and for attendance. Instruction of advanced students and of those engaged in special work is given by special lectures and by laboratory exercises under the personal direction of the professors. Meetings of the instructors and advanced students are held frequently for the discussion of recent discoveries in the various branches of Biology.

FEES.

The fee for tuition in the full course is one hundred and fifty dollars a year, payable in two instalments, on October 1st and February 1st. Fees for partial courses are payable in advance. There are no extra charges for material used in the practical classes, or for the use of instruments or reagents.

ADMISSIONS, EXAMINATIONS, AND DEGREES.

Candidates for admission to the general course must show that they are able to profit by the instruction.

Students who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the Department.

Examinations are held at the close of each college year. The student who has completed the full course in Biology, and has passed satisfactory examinations, is granted a Certificate which admits him to the Medical Department without examination. No degrees are given solely for study in this Department; but Biological students in the Department of Philosophy receive the degree of Ph.D., on the conditions imposed by that Department.

For further information respecting this Department, address the Secretary of the Faculty, Biological Laboratory, Pine and 37th Sts., Philadelphia

Digitized by Google

DEPARTMENT OF LAW.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

P. PEMBERTON MORRIS, A.M., LL.D., Emeritus Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.

HON. J. I. CLARK HARE, LL.D., Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, and *Commercial Law*.

E. COPPEE MITCHELL, LL.D., Professor of the Law of *Real Estate* and *Conveyancing*, and of *Equity Jurisprudence*.

JAMES PARSONS, A.M., Professor of the Law of *Personal Relations* and *Personal Property*.

JOHN J. REESE, A.M., M.D., Professor of *Medical Jurisprudence*.

GEORGE TUCKER BISPHAM, A.M., Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.

E. C. MITCHELL, *Dean of the Law Faculty*,
518 Walnut Street, Philadelphia.

MATRICULATES.

SENIOR CLASS.

Acker, Ephraim L.,	Norristown,	J. R. Hunsicker.
Adams, John S.,	Philadelphia,	Wm. S. Price.
Audenried, Charles Y.,	Philadelphia,	John G. Johnson.
Biddle, Caldwell K.,	Philadelphia,	E. B. Morris.
Blanchard, John,	Philadelphia,	MacVeagh & Bispham.
Brock, Marcus I.,	Philadelphia,	J. M. & W. P. Gest.
Brunner, Frank A.,	Philadelphia,	William H. Peace.
Bryant, Henry G.,	Philadelphia,	S. B. Huey.
Cahall, Joseph L.,	Bridgeville, Del.,	Hon. B. H. Brewster.
Carver, Henry,	Doylestown,	Elias Carver.
Craig, Charles P.,	New Bethlehem,	Hon. B. H. Brewster.
Croasdale, John P.,	Philadelphia,	E. Hunn, Jr.
Davidson, George B.,	Tompkinsville,	R. P. Dechert.
Develin, James A.,	Philadelphia,	H. C. Terry.
Dewey, Archibald R.,	Philadelphia,	J. Sergeant Price.
Evans, Franklin H.,	Philadelphia,	E. O. Michener.
Foulke, Joseph T.,	Spring House,	E. Hopper.

Digitized by Google

Freyer, George A.,	Philadelphia,	E. Coppee Mitchell.
Garrison, Lindley Miller,	Camden, N. J.,	Redding, Jones & Carson.
Gillespie, A. Jackson,	Greenville,	E. L. Perkins.
Halbach, John F.,	Lehighton,	J. P. Gross.
Hamberg, Moses P.,	Philadelphia,	A. A. Grace.
Hancock, Henry J.,	Philadelphia,	J. R. Rhoads.
Harding, Butler Kenner,	Philadelphia,	MacVeagh & Bispham.
Hillman, John J.,	Philadelphia,	Chas. W. Hillman.
Hinkson, Joseph H.,	Chester,	J. B. Hinkson.
Hoffman, Charles,	Philadelphia,	S. B. Huey.
Jeitles, James M.,	Philadelphia,	E. Coppee Mitchell.
Kauffman, Ralph,	Mechanicsburg,	Wm. L. Nevin.
Lambader, Frank, Jr.,	Philadelphia,	B. F. Fisher.
Landon, Benson,	Towanda,	D. C. Dewitt.
Laws, James W.,	Philadelphia,	J. W. Coulston.
Lindsay, Eugene J.,	Philadelphia,	Wm. B. Mann.
MacDonald, John,	Philadelphia,	M. J. Mitcheson.
McGovern, Edward F.,	Wilkesbarre,	J. T. Lenahan.
Magee, Joseph G.,	Philadelphia,	Wm. F. Harrity.
Marple, Charles H.,	Bridgeport,	S. S. Hollingsworth.
Miller, John Faber,	Philadelphia,	Jas. H. Little.
Page, Howard Wurts,	Philadelphia,	Page & Allinson.
Price, William Henry,	Philadelphia,	Wm. S. Price.
Schlegelmilch, G. Edward,	Philadelphia,	E. Coppee Mitchell.
Scott, William C.,	Philadelphia,	Crawford & Dallas.
Sergeant, Wm. W.,	Philadelphia,	G. Sergeant.
Simes, Alexander, Jr.,	Philadelphia,	P. F. Rothermel.
Smith, Lewis L.,	Media,	A. Lewis Smith.
Sproul, Frank P.,	Pittsburgh,	Crawford & Dallas.
Stanger, F. Marshall,	Glassboro, N. J.,	F. R. Edmunds.
Steele, James D.,	Philadelphia,	J. Sergeant Price.
Ulrich, John O.,	Tamaqua,	MacVeagh & Bispham.
Umsted, T. Chalmers,	Smyrna, Del.,	E. Coppee Mitchell.
Wilson, Thomas C.,	Berlin, N. J.,	W. H. Sutton.
Wood, T. Stewart,	Philadelphia,	W. C. Craige.
Ziegler, George G.,	Philadelphia,	Hon. T. Greenbank.

JUNIOR CLASS.

Baldridge, Howard H.,	Hollidaysburg.	
Biddle, Louis A.,	Philadelphia,	John G. Johnson.
Bond, Wm. Cooper,	Sugar Hill.	
Boswell, Russell T.,	Philadelphia,	J. S. Williams.
Bremer, Charles, Jr.,	Philadelphia,	Wm. L. Nevin.
Brennan, Louis P.,	Philadelphia,	J. M. Pile.
Brown, Charles D.,	Philadelphia,	John A. Brown.
Calmore, Walter W.,	Philadelphia,	J. P. Gross.
Cannon, Erasmus B.,	Philadelphia,	E. P. Smithers.
Church, Alonzo C.,	Wilkes-Barre.	
Clark, C. Steele,	Indiana,	E. Coppee Mitchell.
Corbin, Denard,	Camden, N. J.,	Bergen & Bergen.
Coxe, Henry Brinton, Jr.,	Philadelphia,	F. B. Gowen.
Dallett, Morris,	Philadelphia,	H. T. Coleman.

Digitized by Google

Deary, Francis J.,	Philadelphia,	P. Archer.
De Witt, Alexander R.,	Philadelphia,	Sharp & Alleman.
Evans, Wm. Rees,	Philadelphia,	Hon. B. F. Hughes.
Finletter, Leonard,	Philadelphia,	W. A. & W. W. Porter.
Fletcher, Robert P.,	Philadelphia,	Jerome Carty.
Foster, Thomas S.,	Philadelphia,	M. Stevenson.
Fries, Harry K.,	Philadelphia,	J. A. Abrams.
Fronefield, W. Roger,	West Chester,	E. Coppee Mitchell.
Garrett, John Lentz,	Chester,	O. B. Dickinson.
Gibbons, Daniel,	Philadelphia,	A. P. Douglass.
Harman, Robert G.,	Wilmington, Del.	
Hartman, John Fred, Jr.,	Philadelphia,	J. M. Collins.
Heckler, Calvin F.,	Fricks,	Hon. Henry M. Hoyt.
Hunter, Ernest H.,	Philadelphia.	
Jones, James Collins,	Philadelphia,	H. J. Lukens.
Kirkpatrick, Samuel Huckel,	Frankford.	
Krebs, Frank P.,	Tamaqua,	Hon. B. H. Brewster.
Kuni, Charles, Jr.,	Philadelphia,	Wm. B. Lane.
Lloyd, Horatio G., Jr.,	Camden, N. J.,	F. T. Lloyd.
Lodge, R. Gardiner,	Philadelphia,	M. Stevenson.
Lowrie, Roberts,	Tyrone,	J. S. Gerhard.
McGrath, Robert Hunter, Jr.,	Philadelphia,	Geo. Tucker Bispham.
McLanahan, J. Craig,	Hollidaysburg,	E. Coppee Mitchell.
McMurrow, Henry A.,	Philadelphia,	F. S. Brown.
McNeil, Thomas W.,	Unionville,	W. M. Hayes.
Marter, George W.,	Philadelphia.	A. Zane, Jr.
Mershon, Abner H.,	Morrisville.	Hon. A. Briggs.
Miller, B. Davis,	Vincent P. O.	
Mills, Daniel, Jr.,	Philadelphia,	E. Cooper Shapley.
Mitchell, S. Duffield,	West Chester,	Alfred P. Reid.
Moon, Everett,	Fallsington,	McVeagh & Bispham.
Moore, Ziba T., Jr.,	Philadelphia.	
Orlemann, Harry P.,	Philadelphia,	W. H. Staake.
Ott, Albert M.,	Independence, Mo.,	Geo. S. Graham.
Price, Samuel A.,	Chester,	E. A. Price.
Schiedt, Jacob A.,	Philadelphia,	A. L. Hennershotz.
Schofield, Joseph A.,	Philadelphia.	
Siggons, Louis K.,	Philadelphia.	
Smith, Henry A.,	Philadelphia,	Geo. Tucker Bispham.
Smith, Henry W.,	Philadelphia,	Hon. B. F. Hughes.
Smith, Wm. L.,	Philadelphia,	Wm. L. Nevin.
Smithers, Wm. W.,	Philadelphia,	E. P. Smithers.
Snyder, Arthur C.,	Philadelphia,	J. R. Morgan.
Stackhouse, J. Burton,	Philadelphia,	Hon. A. Briggs.
Starr, Lewis,	Woodbury, N. J.,	Garrison & French.
Stockley, Kendall B.,	Philadelphia,	I. S. Sharp.
Sullivan, George J.,	Mobile, Ala.	
Taylor, Joseph T.,	Philadelphia,	F. S. Cantrell.
Tesnow, Henry,	Philadelphia.	
Thompson, Joseph W.,	Phœnixville,	S. W. Pennypacker.
Wilson, Andrew W.,	Indiana,	E. Coppee Mitchell.

Digitized by Google

Wilson, William C.,	Chester Valley,	B. F. Fisher.
Work, Wilton C.,	Philadelphia,	R. E. Shapley.
Wooters, Wm. W.,	Philadelphia,	Furth & Singer
Wyeth, Stuart,	Philadelphia.	

SPECIAL STUDENTS.

Mayer, Clinton O.,	Philadelphia,	E. C. Mitchell.
Paul, Henry N., Jr.,	Philadelphia,	Hollingsworth & Fraley.

SUMMARY.

Seniors,	52
Juniors,	69
Special,	2
Total,	123

The aim of this Department is to aid students who are preparing for admission to the Bar, as well as others who are desirous of acquiring knowledge in any branch of legal learning. The Conveyancer or the Merchant may attend with profit the particular lectures appropriate to his pursuits.

COURSE OF STUDY.

Students may matriculate in this Department at any stage of their professional preparation. No entrance examination is required.

The Course occupies two years. Each year is divided into two terms, the First beginning on the first of October, the Second on the first of February. Each term continues four months. The course is so arranged that a student entering at the beginning of any October term will complete his studies in two years.

SESSION OF 1886-7.

October Term.	February Term.
Practice and Pleading at Law.	Practice and Pleading at Law.
Constitutional Law, Insurance.	Suretyship and Guaranty.
Real Estate.	Conveyancing.
Domestic Relations; Executors and Administrators.	Title to Personal Property, Civil Law; Contract of Sale.

SESSION OF 1887-8.

October Term.	February Term.
Evidence.	Practice and Pleading in Equity.
Contracts, Bills of Exchange and Promissory Notes; Bills of Lading.	Conflict of Laws, Criminal Law.
Equity Jurisprudence.	Equity Jurisprudence.
Agency, Partnership, Corporations, International Law.	Bailment, Common Carriers, Pledges, Chattel Mortgages, Life Insurance.
	Medical Jurisprudence.

Digitized by Google

Instruction is given by lectures, and by books and portions of books upon the subjects of the lectures, which are recommended by the Professors. The students are frequently and carefully examined.

Moot Courts are held, at which questions, prepared by the Professors, are argued. These Courts meet once a week during each term; and an evening is assigned to each case, so that a continuous discussion can be had of the points raised for argument. The Law Academy of Philadelphia, also, an institution of long standing, to which not only students, but many practising lawyers, belong, gives opportunity for debate and argument that has been found of the greatest practical advantage.

The Supreme Court of Pennsylvania, the County Courts, and the Federal Courts are in session in Philadelphia during a great part of the year; so that students can have ample facilities for observing judicial proceedings.

FEES.

The Tuition Fee for the full course (except Medical Jurisprudence) is forty dollars a term. Each Professor will issue tickets for his own lectures to students who do not desire to attend the full course, and will fix the fee at his own discretion. Students who take the full course pay, also, a matriculation fee of five dollars. No other charges are made.

Students who have received the degree of Bachelor of Laws may attend all lectures free of charge.

The students of this Department are also permitted to attend the Lectures given in the other Departments free of charge. Some of these, especially the Lectures on *English History* and *Literature*, *Rhetoric*, *Intellectual and Moral Philosophy*, and *Social Science*, are of value to the Lawyer, and an opportunity is thus offered, to those whose previous training has been to some extent limited, to make up the deficiency.

The law students have the free use of the University Library, under the usual regulations.

The Library of the Law Association of Philadelphia (one of the largest in the country) is also open to students of law in the University for a fee of three dollars per annum, under proper regulations.

EXAMINATIONS AND DEGREES.

The following is the statute of the University which fixes the qualifications of candidates for graduation:—

"In order to obtain the degree of the Bachelor of Laws, there shall be required of every candidate—

"1. That he shall have attended upon the full course of instruction (both Lectures and Examinations) given in the Law Department, except the Lectures on Medical Jurisprudence.

Digitized by Google

"2. He shall have prepared and submitted to the Faculty, at some time to be fixed by them, an essay, composed by himself, on some legal subject, sufficient in merit to satisfy the Faculty of his fitness to receive the degree.

"3. He shall have passed an examination at the end of each session upon the subjects of study during that session. The examination shall be conducted by the Faculty, either orally or in writing, as they may determine, in the presence of such of the members of the committee on the said Law Department belonging to this Board as may choose to attend. And the members of the Board of Examiners appointed by the Courts of Philadelphia may be present at the examination if they desire to do so."

The Essay required from each candidate must be handed to the Dean of the Faculty by the 15th of February.

Errors in spelling or grammar, or other evidence of the want of a good English education, will preclude a candidate from receiving a degree.

The examinations required by the statute are both written and oral, and are held during the last week in May. The questions used at the written examination in May, 1885, will be found on a subsequent page.

Students are not admitted to advanced standing. Actual attendance on the full course of two years is required for graduation.

Students who have attended the lectures of any of the Professors, without taking a full course, may receive certificates of proficiency.

PRIZES.

The Alumni of this Department have established two prizes, one of seventy-five dollars, called the SHARSWOOD PRIZE, and one of fifty dollars, called the MEREDITH PRIZE, to be competed for by the Graduating Class for the best and the second best graduation essay. They are awarded by the Faculty.

A Faculty prize of fifty dollars is given to the student in either class who passes the best written examination with all the Professors, the answers to the questions proposed to be completed within a limited time.

ADMISSION TO THE BAR.

Graduates of this Department having complied with the Rules of Court, are admitted to practise in the Courts of Common Pleas and Orphans' Court of Philadelphia, in accordance with the following rule adopted by those courts in June, 1875,—

"Any citizen of the United States, of full age, who shall have been graduated Bachelor of Laws by the University of Pennsylvania, after the course of study required in the University, may be admitted to practise as an attorney of this court, if he shall have complied with the rule now in force as to the preliminary examination and been registered for one year in the Prothonotary's office as a student of law in said University by the Dean of the Law Faculty thereof."

Digitized by Google

The preliminary examination referred to in this rule is conducted by the Board of Examiners appointed by the courts of Philadelphia County, and embraces all the branches of a good English education. No person can be registered as a student of law without passing this examination.

Application for admission, and for information should be made to the Dean of the Faculty, at his office, 518 Walnut street, Philadelphia.

EXAMINATION QUESTIONS, MAY, 1885.

Professor Hare.

1. What were the defects of Articles of Confederation, and wherein did they differ from the Government of the United States as now constituted?

2. What method did the convention which framed the Constitution adopt for laying it before the people, and obtaining their assent, and that of the existing State and National Governments.

3. State the doctrine of implied powers, and by what clause Congress is authorized to carry it into effect.

4. Define the right of eminent domain, and state wherein it differs from taxation. May a locality or an individual be taxed in more than an equal proportion for a purpose which concerns the community; and, if so, on what principle and subject to what limitations?

5. State the operation of the power of eminent domain, as exemplified in the taking of land for streets without compensation, and charging the owners with the benefits.

6. For what purposes may taxes be levied by the general government, and can the decision of Congress as to what constitutes such a purpose be set aside by the courts?

7. May a State tax imports from other States, and subject to what limitations?

8. What does the power of Congress to regulate commerce include, and to what extent is it exclusive of the States?

9. What powers may the States exercise, though operating collaterally, on commerce? State the operation of the principle, as it regards quarantine laws and bridges.

10. What is the obligation of a contract that a State may not impair, and does the prohibition include prospective legislation or apply to the United States?

Professor Mitchell.

Real Estate and Conveyancing.

1. What is the test to determine whether a chattel affixed to the realty becomes part thereof? How far does the character of the physical annexation affect the question?

Digitized by Google

2. What is the test to determine whether a right to take ore or coal from land is a corporeal or an incorporeal hereditament?

3. What is the measure of the quantity of an estate? Give illustrations, and reasons.

4. What interest has a widow in a vested remainder owned by her husband at the time of his death, supposing him to have died intestate?

5. If land be granted to A for the life of B, and A dies, living B, what becomes of the title to the land during the remainder of B's life?

6. Give the difference between words of limitation and words of purchase, and give illustrations of each.

7. Wherein does a determining limitation differ from a breach of condition in the method of bringing an estate to an end?

8. When land is conveyed to husband and wife in equal shares, how do they hold it? and what becomes of the share of the one who dies first?

9. Who are, and who are not, protected by the recording acts against unrecorded deeds of which they have no notice?

10. What defects in legal proceedings will render a judicial sale void? and what are cured by the acknowledgment of the deed or the decree of confirmation?

Professor Parsons.

1. Is intercourse the fulfilment of a promise to marry?

2. Why does a husband not take his wife's property upon the determination of a separate use?

3. What are the elements of a will?

4. In a gift to a class after a life-interest, when is the class-legatee ascertained in England or Pennsylvania? and how can the share be vested?

5. What is not, and what is, sufficient to charge a legacy upon land?

6. Who is an executor by name or by description?

7. What was the administrator's dilemma (until it was removed by statute) in reference to pleading, or not pleading, assets?

8. When can a foreign executor or administrator interfere with assets in Pennsylvania without ancillary letters?

9. When is the creditor's claim a lien upon, and when does it form part of, the decedent's estate?

10. When does an imperfect gift operate as a declaration of trust?

Professor Bispham.

1. Mention two or more remedies by act of party without suit.

2. Can a citizen of Virginia sue a citizen of New York in the Circuit Court of the United States for the Eastern District of Pennsylvania, if the defendant is found within said district? Give reasons for your answer.

Digitized by Google

3. How do you remove a cause from a State to a Federal Court? State the proceedings.

4. Mention some cases in which the Supreme Court of Pennsylvania has original jurisdiction.

5. What is the distinction between trespass and trespass on the case?

6. Give any four forms of personal actions, and the general issue (if any) in each.

7. What is the purpose of a special traverse?

8. What are the three rules for the production of an issue?

9. If a promissory note were placed in your hands for collection, what steps would you take to obtain judgment?

10. What are points reserved? In whose favor should a verdict be directed where points are reserved?

Digitized by Google

DEPARTMENT OF PHILOSOPHY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
E. OTIS KENDALL, LL.D., DEAN, and Professor of *Mathematics*.
JOSEPH LEIDY, M.D., LL.D., Professor of *Zoology*.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology*.
REV. ROBERT E. THOMPSON, A.M., Professor of *History*.
FREDERICK A. GENTH, PH.D., Professor of *Inorganic Chemistry*.
SAMUEL B. HOWELL, M.D., Assistant Professor of *Geology*.
GEORGE F. BARKER, M.D., PH.B., Professor of *Physics*.
JAMES PARSONS, A.M., Professor of *Law*.
GEORGE A. KŒNIG, PH.D., Professor of *Mineralogy*.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of *Botany*.
THEO. G. WORMLEY, M.D., LL.D., Professor of *Organic Chemistry*.
MORTON W. EASTON, PH.D., Professor of *Comparative Philology*.
EDMUND J. JAMES, PH.D., Professor of *Political and Social Science*.
REV. GEORGE S. FULLERTON, A.M., B.D., Prof. Adj. in *Intellectual and Moral Philosophy*.

EDMUND J. JAMES, PH.D., *Secretary*.

MATRICULATES.

Arthur W. Goodspeed, A.B. (Harvard),	Philadelphia.
Hannah Augusta Kimball, B.S. (Univ.), M.D. (Women's College),	Philadelphia.
Louis Du Pont Syle, B.A. (Yale),	Philadelphia
Jane J. Wetherell, B.S. (Syracuse),	Philadelphia.

The object of this Department is to supervise advanced studies, and, as far as possible, to afford advanced instruction in the various branches of Literature and Science. Several courses, each covering a period of two years, are open to Graduates of any department of this University, or of institutions of similar standing, and to other persons who can pass a satisfactory examination. The student may or may not be a candidate for the degree of Doctor of Philosophy. In the latter case, residence at the University will not be required; in the former, it is expected, though in special cases and for good reasons the Faculty may excuse candidates from compliance with this requirement. A course may begin at any time.

Digitized by Google

COURSES OF STUDY.

The following courses are now open:—

MATHEMATICS.—No instruction. Examination for the degree.

ZOOLOGY AND COMPARATIVE ANATOMY.—Laboratory work, with occasional lectures on Principles and Classification. Oral examination on the Classification of the Animal Kingdom (including the Chief Characters of Classes and Orders of Animals), and on the principles of Comparative Anatomy and General Morphology, together with the specific anatomy of some form selected by the professor.

Text-Books: Nicholson's *Manual of Zoology*, Huxley's *Anatomy of Vertebrated and Invertebrated Animals*, Packard's *Zoology*, and Gegenbaur's *Elements of Comparative Anatomy*.

GEOLOGY.—I. Laboratory work—the plotting of geological field notes in map form by contour lines; the locations of outcrops; the construction of vertical and columnar sections; the manufacture of relief models; and the coloring of both maps and models on the two systems of the Pennsylvania and the United States surveys. II. Lectures on Dynamic, Structural, and Chemical or Physical Geology, on Lithology, on Systematic or Historical Geology, and on Palæontology. III. Reports on districts visited by the student, with sketches, sections, full descriptions of strata, and a determination of the fossils.

HISTORY.—No instruction. Examination for the degree.

INORGANIC CHEMISTRY.—Laboratory practice. Examination in the History of Chemistry, Chemical Philosophy, and the Chemistry of all well-established elements and their compounds.

PHYSICS.—No instruction. Examination for the degree.

LAW.—See Post-Graduate course in Law.

MINERALOGY.—Laboratory practice. Oral examinations, *first* (for students who take Mineralogy as a principal study), on Geometrical Crystallography, comprising the development of the Zonal Equation, the transformation of Axes, the linear and spherical methods of Projection, the reduction of Angles to Indices, the methods employed in fixing the Optical Constants, and, by way of illustration, the identification of the less common minerals, present in well-developed crystals; *second* (for students who take Mineralogy as a secondary branch), on the determination of any mineral substance by the blowpipe, the more common species of minerals at sight, and elementary Crystallography, *i. e.*, the systems, their holohedral and hemihedral forms, and the current systems of classification.

BOTANY.—Lectures and laboratory practice. Examination in Phænogamic, Cryptogamic, Structural, or Geographical Botany. Economic Botany, with the general relations of plants to human wants and uses.

Digitized by Google

ORGANIC CHEMISTRY.—Laboratory practice. Examination on Organic, Physiological, and Toxicological Chemistry.

PHILOLOGY.—Sanskrit, Linguistics, and the Comparative Philology of the Indo-European languages.

POLITICAL AND SOCIAL SCIENCE.—Political Science, Political Economy, Finance, Administration, Legislation, etc.

INTELLECTUAL AND MORAL PHILOSOPHY.—The History of Speculative Philosophy. Logic. Ethics.

FEES.

For Fees, Expenses, etc., see p. 143.

DEGREE.

The Degree of Doctor of Philosophy is conferred upon the following conditions:

1. The candidate must be either a Collegiate Bachelor of Arts or of Science, or must satisfy the Faculty, by examination, that he possesses an equivalent preparation.

2. He must pursue during two years, under the supervision of the Faculty, a course of study in at least three branches of literature or science, one of which shall be designated as the principal branch, and the other two as subordinate branches.

3. He must pursue original investigations in the principal study, must present a satisfactory thesis therein, and must pass an examination in all three branches.

For further information respecting this Department, address the Secretary of the Faculty.

POST-GRADUATE COURSE IN LAW.

MATRICULATES.

SENIORS.

J. Douglas Brown,	Philadelphia.
Edmund P. Leaming,	Camden, N. J.
Frederick M. Leonard,	Philadelphia.
E. Clinton Rhoads,	Philadelphia.
William M. Stewart,	Philadelphia.

JUNIORS.

Robert C. H. Brock,	Philadelphia.
Lucius S. Landreth,	Philadelphia.
Robert Ralston,	Philadelphia.
William Rennyson.	Norristown, Pa.

Digitized by Google

This Course has for its aim to broaden and deepen the foundation of legal education. The first step required for the student's progress is the thorough training of a Law School. In the drill of an ordinary course at such an institution, he acquires a practical experience in the machinery of litigation, and he also acquires the lawyer's process of handling cases or of reasoning from them by analogy, while, at the same time, he masters the leading principles as they are applied in the main departments of law.

The advanced student starts with this equipment. His task is now that of the true lawyer, to find out the reason for every legal proposition which is established, and also to discover its relative importance in the hierarchy of principles which make up the system of law. The investigation involves researches in two directions: First, the source of each principle must be discovered, and the germ when found must be traced through the changes which it has undergone in the course of its growth or decay. The soundness of a principle or the range of its application can thus be illustrated and tested by experience. Owing to the conservative energy of the English race, pre-eminently exemplified in its lawyers, legal doctrines have maintained their continuity in spite of conquests and revolutions, thus furnishing an opportunity for the study of principles in operation under different institutions.

The material for investigating the sources of our law are abundant. The Anglo-Saxon laws exist in a state of exceptional completeness; the Feudal system has been wrought out almost before our eyes and stands before us in its rigid symmetry. The mediæval trade customs which entered England with commerce have been preserved in municipal statutes; the Pandects are a repository from which common lawyers have pilfered, from Glanville to Story. A lawyer who reads the Digest of Justinian for the first time will be struck by the familiar ideas which he encounters at every turn and which he thought were inspired by the common law until he met them in Justinian's compilation.

The sources of our law have been explored, but they have not been turned to account. A history of legal thought must be written in order to make our precious archives available, and until that desideratum is obtained, the full benefit of experience, which is the only guide for the application of any legal doctrine, will not be at command. In the absence of such a history, the scattered information bearing upon the genesis and evolution of legal tenets must be gathered at a disadvantage.

The second study is to classify the law and reduce it to a system. The Profession shares the aspiration of the lay public for a body of law which everyone can understand. It is this professional craving which accounts for the multitude of text-books professing to abridge different parts of the law, and for the frequent attempts to embody sections of the law in a series

Digitized by Google

of propositions. The common aim of the bar and of the public is to simplify the law. The profession, however, knows that this can be accomplished in but one way, and that is by mastering the principles which underlie the different phases of the law. Not only must every part be known, but its relation to every other part must be ascertained in order to organize a system. The epitomes, made of different parts, serve to counteract the segregation of law according to the objects to which it is applied, and to correct this retrograde tendency. The principles which are universal, extracted from digests of all the parts, will form a body by themselves, and the rank of each principle will be regulated by its relative importance. The modifications which the principles undergo in special parts of the law will be the only qualifications requiring special mention. The principles, for instance, of patent law, will then be severed from the arts and sciences and form an integral portion of the legal system. The best professional opinion could readily furnish such an analysis of this, as well as of other specialties. The law is not absorbed by the material in which it works; on the contrary, by classifying matter the law brings it under the sway of reason. The law will be simplified because it will be scientific. It will not be petrified by enactment.

COURSE OF STUDY.

The course of study covers two years. The student, however, can begin at the opening of either year, November 1st.

One year of the course is devoted to the study of the Roman law and of the principles that have grown out of it.

The text-books used in this course are Hadley's *Introduction to the Roman Law*, Mackeldey's *Roman Law*, and Holland's *Jurisprudence*. But these text-books serve simply as an outline of the subject. The works of Austin, Clark, Markby, Hunter, Moyle, Roby, and others in English, besides authors in German and French, are consulted and utilized to fill out the framework of study.

In the analysis of an act, an important element in legal investigation, Aquinas and the Jesuit writers of to-day furnish the only source of information. Gury's *Compendium Morale* is used, though any Catholic manual would serve the purpose.

The year devoted to a study of the Common law is taken up with the Anglo-Saxon law, the Feudal system, and the principles peculiar to the Common law and developed in the course of its history. There is no adequate history of the English law, and the results of German investigations, of great importance during the past fifty years, lie scattered through separate treatises and periodicals, and have not been collected and made accessible to English students. The work of Glasson, *Histoire du droit et des Institutions*

Digitized by Google

d'Angleterre, comprehends in its first and second volumes a summary of the modern researches into the early periods of our law, both Saxon and Norman. The second volume on the Norman period is used as text-book in connection with Gunderman's *Die Common Law* and Digby's *History of the Law of Real Property*. Kemble's *Anglo-Saxons in England* is the only availably work in English for the Saxon period, and is adopted as the text-book for the class.

The primary principles of the Common law have been investigated by Judge Holmes, and his work on the Common law will serve as the guide for a study of them. The comparison of English and Continental theories of law is forced upon the profession in controversies between citizens of different countries where the rules of the various systems compete for the control of the legal relations between the parties. The work of Westlake on Private International Law is the most convenient text-book, though Story, Wharton, Foote, and other writers will be consulted.

ADMISSION AND FEES.

Graduates of any law school of recognized standing and members of the bar are eligible as students in this department. The annual fee for tuition is twenty-five dollars.

EXAMINATION AND DEGREES.

Examinations are held annually in May, and are both oral and written. The written questions put at the last examination are appended.

Graduates of this Course receive the degree of Master of Laws, unless the post-graduate course of law is combined with two other courses of study in the Department of Philosophy. Then the degree of Doctor of Philosophy is conferred.

A thesis upon some topic connected with the course is required to be handed in as early as possible during the second year. It is expected to contain an exhaustive analysis of the subject-matter.

For further information apply to the Dean,

JAMES PARSONS,
1430 *South Penn Square*,
Philadelphia.

ANNUAL EXAMINATION, NOVEMBER, 1885.

PROFESSOR PARSONS.

State in reply to each question the reason for your answer.

1. What was the mark-system among the Anglo-Saxons, and how did the *comitatus* affect it?

Digitized by Google

2. What were the *capitula*, and why was there a pledge to obey laws?

3. What saved the Germanic States from the system of ecclesiastical and military government which succeeded among the Celtic or Latin races?

4. What was commendation?

5. What was a *minus jus* and a *jus majus*?

6. What was the difference between a *jurata* and an assise?

7. How does an indictment correspond with the appeal of primitive law?

8. Does the law exact of every man average capacity unless he is exempted by a classified disability?

9. What is the history of privity?

10. How far do the requirements of jurisdiction for divorce in England and in Pennsylvania coincide?

Digitized by Google

DEPARTMENT OF PHYSICAL EDUCATION.

This Department carries into practical operation the conviction, that during the period of growth the body needs quite as much training as the mind, and that a college which holds out incentives to intellectual progress should not overlook the bodily progress without which all intellectual prizes, when won, are useless. To what other cause than the neglect of physical culture is it due that, in times past, the first scholars in college, generally failed in after life to make good their early promise? Impressed with the belief that those who seek to develop the mind should also exercise a supervision over the body, the University has instituted this Department, and, through the liberality of the City and the zeal of the Alumni, has provided the means, and, what is equally important, the system, for the due care and development of the Physical Education of its students.

The means are supplied in the Athletic Grounds, obtained from the City, lying next to and partly surrounded by the College buildings, and comprising four acres, which have been fenced, graded and improved, a fine quarter-mile track laid, the middle of the lot prepared for cricket, base-ball, foot-ball, etc., a grand stand erected, and a competent person engaged to supervise and restrict the use of the grounds, and to see that the intentions of the Trustees that they are to serve the purpose of Physical Education, as well as of healthful relaxation, shall be thoroughly carried out. The boat-house of the Athletic Association, situated on the Schuylkill, above the dam, is open to all matriculates in the Department of Physical Education upon the payment of a small additional sum.

The University has also fitted up a gymnasium, wherein are to be found all the latest appliances for the proper, systematic and symmetrical development of the body. These are to be used by each student only after undergoing his physical examination, and receiving advice from the Director of this Department as to the particular needs of his body, and as to the weak points which need strengthening and development. This advice is founded upon a careful study not only of his present condition, but of his personal and family history, taking thus into consideration hereditary predisposition to disease, if any exists.

The system consists in direct, personal, individual care of each student, who immediately after entrance to College receives a thorough physical exami-

Digitized by Google

nation in regard to his general health, strength, and muscular development, which is duly recorded. An extract from this record is sent to his parent or guardian as follows:

DEAR SIR:

The following extract from the University Records represents the general physical condition of
of the Class of

Development . . . . . Average Development . . . . . .
Strength . . . . . Average Strength . . . . . .
Condition, viz.: Relation of strength
to development . . . . . Average Condition . . . . . .
Chest Capacity. . . . . Average Capacity . . . . . .
Muscles especially requiring development . . . . . .
Exercise recommended . . . . . .
General Advice . . . . . .

It is hoped that he will follow the line of physical work thus indicated with sufficient persistence to effect some permanent improvement.

[Signed] *Director of Physical Education.*

This examination is repeated at stated intervals, certainly once every year of his college life, and the record will show the improvement or deterioration of each student, and the amount and the quality of exercise which each one demands, both of which must be administered or recommended by an experienced teacher. Merely competitive sports do not of themselves supply these demands. Some men, naturally athletic and fond of exercise, need to be guided and directed, sometimes to be restrained; others, of sluggish temperament or of too studious habits, must be stimulated; all require to have their work, whether voluntary or compulsory, directed by proper methods, so that the result may be a harmonious and symmetrical development of the entire organism.

It is not proposed to make the attendance on this Department compulsory; all that can be hoped for is that its importance will become so manifest to the students themselves that the small demand which it makes upon their time will be responded to with alacrity and zeal.

For further information apply to

J. WILLIAM WHITE, M.D.,
Director of Physical Education,
1810 *South Rittenhouse Square.*

Digitized by Google

LIBRARY.

The University possesses one of the largest and most complete libraries of works relating to Finance and Political Economy to be found in any educational institution of the world. The foundation was laid by the great COLLECTION OF THE LATE STEPHEN COLWELL, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, besides many in German. This has been supplemented by the gift from MR. MCCALMONT, of London, of a collection of about three thousand English pamphlets, covering the period from the close of the seventeenth century to our own time, and bound in chronological order; and also by the bequest of the LIBRARY OF THE LATE HENRY C. CAREY, which includes many works that appeared since Mr. Colwell's death, and is especially rich in statistical literature, European government reports, and the like.

The ROGERS ENGINEERING LIBRARY is composed of standard works in this Department, together with a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, etc.

The Library contains also THE WETHERILL LIBRARY OF WORKS ON CHEMICAL SCIENCE, and THE ALLEN LIBRARIES OF CLASSICAL LITERATURE, BIBLIOGRAPHY, SHAKESPEARE, AND MILITARY SCIENCE.

Besides these, there is a large collection of works on General Literature, some of them the gifts of the early friends of the University, among them BENJAMIN FRANKLIN, Dr. RICHARD PETERS, and LOUIS XVI. The income of the TOBIAS WAGNER LIBRARY FUND is expended in the purchase of books in the department of History. The LIBRARIES OF THE LITERARY AND SCIENTIFIC SOCIETIES are of considerable value.

The entire collection is open to all undergraduates, and as an evidence of the high estimation in which it is held, it may be stated that students from other institutions of learning, have, on a number of occasions, come to Philadelphia for the purpose of pursuing investigations in this library, which the means at hand in their own did not permit.

A card catalogue is now in preparation which will embrace in a single alphabet, references under author, title and subject, to the entire contents of the Library. The subject references are made more than usually copious to the end that the resources of the Library may be utilized in the highest possible degree.

The Library is open every College day from 9 A.M. to 3 P.M., and students are permitted to withdraw, for home perusal, two volumes at a time, for two weeks, subject to a renewal for a like period, if not needed by others. The use of the library for consultation is also freely accorded to graduates, and to strangers under proper regulations.

Digitized by Google

FEES AND EXPENSES.

TUITION FEES.

The Tuition Fee in the *College Department* is one hundred and fifty dollars a year, except that for the last three years in the Towne Scientific School, and for the last two years in the course in Philosophy it is two hundred dollars a year, and for the course in Music thirty dollars a year.

The Tuition Fee in the *Departments of Medicine, Biology* and *Philosophy* is one hundred and fifty dollars a year; in the *Departments of Dentistry* and *Veterinary Medicine*, one hundred dollars a year; in the *Department of Law*, eighty dollars a year; and in the *Auxiliary Department of Medicine*, except to students and graduates of the Department of Medicine, thirty-five dollars for the course.

For time at which these tuition fees are payable, see tabulated statement below. All fees for special or partial courses are payable in advance.

Students in one department may attend lectures given in any other department, by consent of the Dean, without charge, but they shall pay the regular special fees for all practical work.

Graduates of a department may attend the lectures in that Department, but shall also pay regular special fees for all practical work.

Under no circumstances are any changes made in the established fees.

GRADUATION FEE.

In the *College Department* the Graduation Fee is for the Baccalaureate degree twenty dollars, for the Master's degree ten dollars.

The Graduation Fee in the *Department of Dentistry* is thirty dollars; in the *Department of Philosophy*, thirty-five dollars; and in the *Auxiliary Department of Medicine*, ten dollars.

No graduation fee is required in the *Departments of Medicine, of Veterinary Medicine*, and *of Law*.

CERTIFICATE FEE.

A fee of ten dollars is charged each student receiving a certificate on completion of a special or partial course.

Digitized by Google

COLLEGE DEPARTMENT.

Freshman Year, and Sophomore Year.

Annual Tuition Fee	Course in Arts, . . . / Course in Philosophy, / Course in Science, . .	$150
Annual Fee for Department of Physical Culture, ...		5

Junior Year, and Senior Year.

Annual Tuition Fee	Course in Arts, ...	$150
	Course in Philosophy, ...	200
	Course in Technical Science, ...	200
	Course in Finance and Economy, ...	150
	Course in Music, ...	30
*Annual Fee for Department of Physical Culture, ...		5
Deposit required in Chemical Laboratory to cover breakage, balance refunded, ...		$20

The Annual Tuition Fees are payable to the Treasurer of the University in two instalments, on October 1st and February 1st.

Graduation Fee, Baccalaureate degree, ...	$20
" " Master's degree, ...	10
Fee for Certificate of Special or Partial Course, ...	10

MEDICAL DEPARTMENT.

Winter Term.

First Year.

Matriculation Fee	$5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection	150 00
Dissecting material	$1 a part.

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection	$150 00
Dissecting material	$1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee)	$150 00

* This fee is not required of students in the course of Music.

Digitized by Google

Fee for the full third year course to graduates of other schools, including privilege of applying for graduation (no graduation fee) $150 00
Material for operating . . . . . $1 a part.

Fourth Year (Voluntary).

For general ticket, including all the practical courses of this year (no graduation fee) $150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee) 200 00

SPRING SESSION.

Matriculation fee (paid once only) $5 00
Tuition fee 30 00

This sum will be credited on account of the fee for the ensuing Winter Term.

The Tuition fee of $150 each year is on condition of its being paid before November 1st. If a division of payments is desired the fee will be $160 for the year, on condition that $80 be paid before November 1st, and $80 before February 1st.

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including bandaging and operating, to graduates of this school $75 00
For a single Course of Lectures, except Materia Medica . . . 20 00
For Course on Materia Medica, and on Bandaging and Operating, each 10 00
For Practical Course in the Chemical Laboratory 25 00
For the Course in Practical Gynæcology of the third year . . . 25 00
For any one of the remaining practical courses of the third year . 15 00

Graduates of the School are admitted to the LECTURES free of charge; but they pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

All fees are payable in advance to the Secretary of the Faculty, who will issue a general ticket of admission to all the lectures and practical instruction.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

Matriculation Fee, ... $5
Tuition Fee for the course, ... 35
Students and Graduates of the Department of Medicine may attend the lectures in this department without charge.
Graduation Fee, ... 10

Partial Courses.

Tuition Fee for any one or more of the five courses, each, . . . $15

DEPARTMENT OF DENTISTRY.

Matriculation Fee, ... $5

Winter Term.

First Year.

Tuition Fee, ... $100

Second Year.

Tuition Fee, ... $100
Fee for Dissection, ... 10
Tuition Fee, including fee for the second year in the Department of Medicine, ... 190
Graduation Fee, ... 30

Note.—For fee for third year in Medicine see preceding page. Students of the third year in the Medical Department, graduates of this Department of Dentistry, may use the Dental Laboratory and Operative Clinics without charge.

DEPARTMENT OF BIOLOGY.

Matriculation Fee, ... $5

General Course.

First Year, and Second Year.

Annual Tuition Fee, ... $150
Fee for Certificate, ... 10

Fees for Partial Courses.

General Biology, ... $90
Mammalian Anatomy, ... 30
Botany, plant analysis, ... 30
Histology, ... 30
Embryology, ... 30
Zoology and Comparative Anatomy, ... 30
Botany and Morphology, ... 75
Physiology, ... 25

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

Matriculation Fee, ... $5
Annual Tuition Fee, ... 100

DEPARTMENT OF LAW.

Matriculation Fee, ... $5

First Year, and Second Year.

Annual Tuition Fee, ... $80

A graduation fee is not required.

DEPARTMENT OF PHILOSOPHY.

Matriculation Fee, ... $5

First Year, and Second Year.

Annual Tuition Fee, ... 150
Graduation Fee, ... 35

The cases of Applicants for a degree on examination alone, without instruction or supervision, will be considered separately.

POST-GRADUATE COURSE OF LAW.

First Year, and Second Year.

Annual Tuition Fee, ... $25

ACCOMMODATIONS.

Good board can be had near the University at from five to seven dollars a week; and a list of recommended boarding-houses can be seen on application to the Rev. Jesse Y. Burk, Secretary of the Board of Trustees, at the University.

EXPENSES.

	Min.	Max.
Board, thirty weeks*	$150 00	$210 00
Tuition (according to Department and Year of the Course)	100 00	200 00
Text-books	10 00	50 00
	$260 00	$460 00

* The session in some of the Departments is from five to nine weeks longer.

Digitized by Google

DEGREES, HONORS, AND PRIZES, 1884–5.

HONORARY DEGREES.

JUNE 15, 1885.

Master of Arts, REV. FRANCIS D. HOSKINS.
Doctor of Divinity, REV. CHARLES F. B. MIEL.

DEGREES IN COURSE—CERTIFICATES.

JUNE 15, 1885.

Bachelor of Arts—

Harrison White Biddle,
Samuel Laurence Bodine,
George Rosengarten Bower,
James Fry Bullitt,
Mark Wilks Collet,
Howard Lowe Cresswell,
Naudain Duer,
Randolph Faries,
Leonard Finletter,
William Linton Landreth,
Robert Grier Le Conte,
Charles Lester Leonard,
Herman T. Lukens,
William Emott Maison,
Edward de Veaux Morrell,
George Gelbach Emanuel Neuber,
William Woodbridge Noble,
Benjamin Brannan Reath, Jr.,
Joseph Allison Scott,
Henry Sheafer,
Arthur Donaldson Smith,
Henry Austie Smith,
David Porter Stoever,
William George Thomson,
Samuel Welsh, 3d,
John Rhea Barton Willing,
Lewis Wynne Wister,
Edward Yarnall.

Bachelor of Science—

Richard Downing Baker,
Alexander Johnson Gray,
Llywellen Howard Jenks,
Arthur Gillum Krug,
Lucien Vernon Leach,
Charles Elder Lindsay,
William Merriman Price,
Charles Hopkins Small.

Bachelor of Philosophy—

Miers Busch, Jr.,
William Wilson Carlile,
Roland Post Falkner,
James Collins Jones,
David Milne, A.M.

Bachelor of Laws—

George A. Barrows,
C. Oscar Beasley,
Henry V. Massey,
Webster A. Melcher,

Digitized by Google

Luke D. Bechtel,
Burton Binns,
Ferree Brinton,
Joseph S. Clark,
James J. Comly,
William B. Crawford,
Wm. S. Darlington,
John F. Develin,
Maurice Fels,
William C. Ferguson,
John W. Galbraith,
Benjamin D. Gardiner,
D. Clare Good,
Alfred Guillon,
W. Spence Harvey,
Chancellor D. Holden,
Edwin F. Lott,
Percy B. Metzger,
Hobart Miller,
Michael J. O'Callaghan,
Furman S. Phillips,
Robert Ralston,
Wm. H. T. Reeves,
Frank R. Shattuck,
Samuel F. Snively,
Clarence Sprout,
Adelbert E. Stockwell,
Henry C. Todd,
Henry C. Thompson, Jr.,
H. Standley Twells,
Horace M. White,
Wm. Henry Woodward,
W. Hampton Yardley.

Master of Arts—

Harry Clifton Adams, B.A.,
Frank Schell Ballentine, B.A.,
David Bell Birney, B.A.,
Joseph Jastrow, B.A.,
Harold Kennedy,
George Edward Krauth, B.A.,
Felix Emanuel Schelling, B.A.,
Howard Singer Stetler, B.A.,
Samuel Brown Wylie, B.A.

Bachelor of Sciences Auxiliary to Medicine—

George A. Bodamer, M.D.,
Howard Bratton, A.M., M.D.,
Hobart A. Hare, M.D.,
H. Augusta Kimball, M.D.,
Ernest Wende, M.D.

PROFESSIONAL DEGREES.

Civil Engineer—

Llywellyn Howard Jenks, B.S.,
Charles Elder Lindsay, B.S.,
William Merriman Price, B.S.,
Arthur Gillum Krug, B.S.

Mining Engineer—

Alexander Johnson Gray, B.S.,
Lucien Vernon Leach, B.S.

Mechanical Engineer—

Charles Hopkins Small, B.S.,
William Thomas Hildrup, Jr., B.S.

CERTIFICATES.

Department of Arts—

Charles Howard Hagert,
Grant Lee Knight.

Department of Science—

Edward Sinclair Campbell, Jr.,
Winchester Dickerson,
Otto Leonardo Kehrwieder,
Harry Spencer Lucas,
David Rinehart Mehaffey,
Frederick Gad Myhlertz,
Frank Roop Smith.

Digitized by Google

Department of Finance and Economy—

George Bartleson Benners, Norman Ellison,
John Simpson Fernie.

Department of Music—

Jane Miller Wilson, Mary Elizabeth Davey.

MAY 1ST, 1885.

Doctor of Medicine—

Albright, Titus,	Hilltown,	Vesicular Emphysema.
Alexander, Reid,	Dudley, Ill.,	Physiology, Causes, and Symptoms of Sick Headache.
Allyn, Herman B., A.B. (Univ. Pa.),	Philadelphia,	An Inquiry into the Value of certain Remedies in Dyspepsia.
Ball, Lewis Heisler, Ph.B. (Delaware),	Stanton, Del.,	Diabetes Mellitus.
Beckley, Joseph R.,	Lebanon,	Abortion.
Birney, David Bell, A.B. (Univ. Pa.),	Philadelphia,	The Delicacy of the Murexide Test.
Boom, Harry Herbert,	Philadelphia,	Hygienic Consideration of Drinking Water.
Boyd, Robert H. A., A.B. (Lafayette),	Belvidere, N. J.,	The Food and Hygiene of Infants.
Brader, William B.,	White Haven,	Chronic Lead Poisoning.
Bratton, Howard, A.M. (Princeton),	Elkton, Md.,	Typho-malarial Fever.
Butler, William J.,	Pittston,	Typhoid Fever.
Cameron, James, M.D.,	Shanghai, China,	The Abuse of Opium.
Cameron, Markley C.,	Pittsburgh,	Tetanus.
Carothers, Edward J.,	San Antonio, Tex.,	Cholera.
Clark, George A.,	Green Village,	Stricture of the Orifice of Male Urethra.
Coates, Louis P., M.D.,	Catlett, Va.,	Indigestion.
Coburn, Clinton C.,	Germantown, Ky.,	Diphtheria.
Cochrane, Wm. R., Ph.B. (Western Univ.),	Philadelphia,	Accommodation of the Eye.
Cooke, Dudley T., A.B. (Central High School),	Philadelphia,	Diphtheria.
Day, F. Harvey,	Wilmington, Del.,	Antiseptic treatment of Wounds.
Deaver, Harry C.,	Buck,	Diphtheria.
Dupue, Barclay H.,	Harmony, N. J.,	Dyspepsia.
Eckels, G. Morris, Ph.G.,	Mechanicsburg,	Comparative solvent power of Wine and Alcohol.
Edsall, Frank H.,	Hamburg, N. J.,	The Anatomy and Physiology of the Retina.
Elmer, Matthew K., A.B. (Princeton),	Bridgeton, N. J.,	Hydrorachis.
Emery, Francis, E.E.,	San Juan, Argentine Republic,	Parenchymatous Nephritis.
Evans, Elmer E.,	Lititz,	Typhoid Fever.

Digitized by Google

Evans, William,	Darling,	Rhus Poisoning.
Farquhar, Charles,	Olney, Md.,	Nephritis from cheap Tinware.
Freas, H. M., A.B. (Penn'a),	Lafayette Hill,	Poisoned Wounds.
Freeman, Walter J.,	Philadelphia,	The Microscope in General Pathology.
Gadd, Sam'l Wesley, Ph.G.,	Philadelphia,	Rectal Alimentation by Suppositories.
Gallagher, W. Moorehouse,	Hollidaysburg,	Diet.
Geissel, Albert E.,	Philadelphia,	Relation of Bacillus Tuberculosis to Phthisis.
Goodell, William C.,	Philadelphia,	Excision of the Hip-joint.
Greenfield, John W., M.D.,	Springboro',	Croupous Pneumonia.
Grimm, Nathan P.,	West Chester,	A Brief History of the Asiatic Cholera.
Guiteras, Gregorio M., A.M. (La Salle),	Matanzas, Cuba,	A new aid in the Diagnosis of Renal Diseases.
Herr, William M.,	Lancaster,	Typhoid Fever.
Hill, William P.,	St. Louis, Mo.,	Origin of the Germ Theory.
Hines, Peter,	Wilkes-Barre,	Cirrhosis of Liver.
Hite, J. Edwin,	Kansas, Ill.,	Fistula in Ano.
Hubbard, Thomas,	Ashtabula, Ohio,	A Collection of Nasal Tumors and Aspergillus from Nasal Pharynx.
Huston, William O., A.B. (Westminster),	West Fairfield,	Mental Influence in Disease.
Jelovitz, Meier L.,	Philadelphia,	Bubonic Plague.
Johnson, William H.,	Hartford, Conn.,	Condition of Life.
Jones, Fremont C.,	Ebensburg,	Diabetes Mellitus.
Kelley, John A.,	Pittston,	Lesions of the Cerebrum.
King, Thomas D., A.B. (Princeton),	Springfield, Ohio,	The Influence of the Hypophosphites on Artificial Digestion.
Kittredge, Frank E.,	Nashua, N. H.,	Acute Endocarditis.
Kreps, John J.,	Clear Spring, Md.,	Acute Bronchitis.
Learned, William T., A.B. (Brown),	Fall River, Mass.,	Scarlatina.
Lincoln, Mark H.,	Laurelton,	Fistula in Ano
Lott, William C., A.B. (Brown),	Bridgeton, N. J.,	Experimental Research in Mechanical Tuberculosis.
Marcy, John W.,	Camden, N. J.,	The Hypodermic use of Strychnia in Collapse.
Mengel, Matt. S.,	Reading,	Epidemic Cholera.
Merkel, Horace E.,	Minersville,	A Clinical Study of Anthracosis.
Miller, Asher D.,	Manor Station,	Scrofula.
Miller, Geo. B. McClellan,	Philadelphia,	The Post-Mortem Imbibition of Poisons.
Morrow, Charles H.,	Gloucester, Mass.,	The Pancreas.
Morton, Thomas S. K.,	Philadelphia,	Eleven Dermoid Cysts.
Musser, F. Reber,	Muncy,	The Opium Habit.
McAllister, Alexander,	Camden, N. J.,	The History of Acute Yellow Atrophy of the Liver.

McClees, William D.,	Columbia, N. C.,	Simple Intermittent Fever.
Nichols, William V.,	Chester, N. J.,	Alveolar Sarcoma.
Packard, Fred'ck A., B.A. (Univ. of Penna.),	Philadelphia,	Filtration Experiments relating to the Etiology of Septicæmia.
Perley, George P., M.D.,	Bridgeton, Me.,	Menstruation.
Pierce, David,	Elizabeth,	Management of Batteries in Electro-therapeutics.
Pike, Charles P.,	Philadelphia,	Hemorrhoids.
Plumer, Andrew J., M.D.,	Council Bluffs, Ia.,	Fatal Lesions of the Head.
Potter, James T.,	Philadelphia,	Light, and some of its effects.
Potts, Chas. S., A.B. (Central High School),	Philadelphia,	Arsenic in Glass and the caustic Alkalies.
Purcell, McDaniel,	Greenwood Department, Va.,	The Eye as a Means of Diagnosis in Disease.
Rhoads, Edward G.,	Wilmington, Del.,	Epidemic Cholera.
Rickert, Charles M.,	Gratz,	Cyst of the Parovarium.
Riera, John H.,	Philadelphia,	Osteotomy for the cure of Genu Valgum.
Ring, G. Oram, A.B (Central High School),	Philadelphia,	Typhlitis or Perityphlitis.
Roberts, Thomas S.,	Minneapolis, Minn.,	A case Illustrating the Value of Massage to the General Surgeon.
Robeson, William F., B.S. (Dickinson Seminary),	Lewistown,	Tracheotomy.
Rowe, Charles K.,	Dudley, Ill.,	Malarial Fevers.
Rowe, R. B., A.B. (Princet'n)	Strasburg,	Scarlatina.
Schnabel, Edwin D., M.E.,	Hecktown,	Analogy between Diphtheria and Herpetic Tonsillitis.
Scull, William B.,	Philadelphia,	The Examination of Urine.
Shaw, Joseph B.,	Trenton, N. J.,	Diphtheria.
Shober, John Bedford, A.B. (Princeton),	Philadelphia,	Filtration Experiments relating to the Etiology of Septicæmia.
Small, Edward H., A.B. (Princeton),	Mercer,	Vomiting and Nausea of Pregnancy.
Stephens, Frank M.,	Bentleyville,	Hay Fever.
Stetler, Howard S., A.B. (Univ. of Penna.),	Philadelphia,	The Physiological Action of Convallamarin on the Nervous System.
Stone, Ralph Lane,	Norristown,	Scarlatina.
Strouse, Frederick M.,	St. Paul, Minn.,	Experimental hypod. Injection of Corrosive Sublimate and its Histological effect.
Struble, William McD.,	Trenton, N. J.,	Scarlatina.
Sutton, Frank S., Ph.B. (Univ. of Cal.),	San Francisco, Cal.,	Post-Mortem Imbibition of Arsenic.
Swaney, Herbert N.,	Crossingville,	Aseptic Surgery.
Taubel, L. Edward, A.B. (Ursinus),	Philadelphia,	Ulcer of the Stomach.
Taylor, George B.,	Towanda,	Acute Dysentery.

Digitized by Google

Taylor, George Y., A.B. (Princeton),	Burlington, N. J.,	Operative treatment of Pericardial Effusions.
Taylor, John F.,	Brownville,	Etiology and treatment of Chronic Phthisis.
Tull, M. Graham, A.M. (Lafayette),	Philadelphia,	Climatic and other advantages of Morganton, Burke Co., N. C.
Van Pelt, William T.,	Philadelphia,	Thrombosis.
Weaver, Daniel B., A.B. (Yale),	Strasburg,	Ear Diseases in General Practice.
Wells, George M., A.M.,	Philadelphia,	Intestinal Obstruction.
Williams, Thos. D., Ph.G.,	Minersville,	Hæmoptysis.
Wilson, E. Frazer, A.B. (Kenyon),	Mt. Vernon, Ohio,	Tæniæ.
Woodnutt, Clement A.,	Philadelphia,	Sponge Grafting.
Woodruff, Robert A.,	Lewistown,	Nutritive Enemata.
Work, Hubert,	Indiana,	Management of Natural Labor.
Zeigler, S. Lewis, A.M. (Lewisburg),	Lewisburg,	Simple Jaundice.

JUNE 15TH, 1885.

Cotzhausen, Louis v., Ph.G.,	Philadelphia,	Tænifuges.

Of the foregoing there were from:

Argentine Republic,	1	Minnesota,	2
California,	1	Missouri,	1
China,	1	New Hampshire;	1
Connecticut,	1	New Jersey,	11
Cuba,	1	North Caroline,	1
Delaware,	3	Ohio,	3
Illinois,	3	Pennsylvania,	67
Iowa,	1	Texas,	1
Kentucky,	1	Virginia,	2
Maine,	1		
Maryland,	3	Total	108
Massachusetts,	2		

HONORS.

In the College Faculty, at the examination for Degrees—

In The Arts—

Of the *First Class*, to Mark Wilks Collet, and Herman T. Lukens.

Of the *Second Class*, to James Fry Bullitt, and Edward de Veaux Morrell.

Of the *Third Class*, to Howard Lowe Cresswell, Joseph Allison Scott, Harrison White Biddle, and William Emott Maison.

In The Towne Scientific School—

Of the *Third Class*, to Charles Hopkins Small, and Charles El Lindsay.

Digitized by Google

In The Wharton School of Finance and Economy—

Of the *First Class*, to James Collins Jones.
Of the *Second Class*, to Roland Post Falkner.
Of the *Third Class*, to William Wilson Carlile.

At the annual examination DISTINCTIONS of the *First Class*—

In The Arts to—

Juniors—Howard James Truman.
Sophomores—William Romaine Newbold, George Flowers Stradling.
Freshmen—Horace Clark Richards, Lightner Witmer.

In the Faculty of Medicine for graduation theses—

MAY 1, 1885.

Distinguished Merit, to—

William C. Lott, Charles S. Potts,
Thomas S. K. Morton, Thomas D. King.

Honorable Mention to

Frederick A. Packard, Howard S. Stetler,
John B. Shober, William R. Cochrane,
Geo. B. McC. Miller, William C. Goodell,
Herman B. Allyn, Albert E. Geissel,
Frederick M. Strouse, Louis von Cotzhausen.

The following graduates of the Medical Department, Class of 1885, were appointed to Hospitals on competitive examinations. They are alphabetically arranged—

To the University Hospital—

G. M. Guiteras, E. G. Rhoads.
F. A. Packard,

To the Philadelphia Hospital—

H. B. Allyn, Andrew J. Plumer,
G. M. Guiteras, William F. Robeson,
W. D. McClees, Thomas S. Roberts,
William V. Nichols, George B. Taylor,
Charles S. Potts, G. M. Wells.

To the St. Mary's Hospital—

Robert H. A. Boyd, Wm. T. Learned.
Matthew K. Elmer,

To the Presbyterian Hospital—

David B. Birney, George Y. Taylor.
William C. Lott,

The following were appointed to Hospitals, at which no examination for appointment is held—

To the Pennsylvania Hospital—

Thomas S. K. Morton.

To the Children's Hospital—

Thomas S. Roberts, John B. Shober.

Digitized by Google

In the Faculty of Dentistry, at the examination for Degrees—

Honorable Mention for averages exceeding 90, to—

Grafton Munroe,	Md.	Ditson P. Carter,	Ohio.
George G. Milliken,	Penna.	Frank W. Fisher,	N. Y.
Chas. T. Milliken,	Cal.	L. Foster Jack, M.D.,	Penna.
Augustus Bruns,	Germany.	Frank C. Knapp,	N. Y.
Louis Shaw,	Penna.	Thaddeus T. Hayward,	Minn.
George H. Wells,	Mass.	William R. Long,	Penna.
Victor S. Jones,	Penna.	William L. Winner,	Penna.
Charles J. Mercer,	Penna.	Edgar C. Bailey,	Ga.
Edwin G. Parker,	N. Y.	Henry M. Stine.	
John A. Schmidt,	N. Y.		

PRIZES.

I. By the College Faculty—

1. In the Greek Language and Literature, Junior Prize for the best examination on "the Oration of Æschines contra Ctesiphontem," read with the Professor in addition to the regular course, equally to *Crawford Dawes Hening*, and *Howard James Truman*.

2. For the best examination by a member of the Freshman Class on Greek Prose Composition with the accents, to *Horace Clark Richards*, with Honorable mention of *Lightner Witmer*.

3. In Mathematics, Junior Prizes for the best examination on the Lectures on Quaternions, given to the Voluntary Junior Class, 1st Prize to *Crawford Dawes Hening;* 2d Prize to *John Williamson Ziegler*.

4. In History and English Literature, Senior Prize for the best Essay on "Colbert," to *Henry Szlapka*.

5. The Junior Prize for the best Essay on "The Meditations of Descartes," to *Howard James Truman*, with Honorable mention of *George Christian Eisenhard*, *Robert Murray Hogg*, and *Charles Elmer Woodruff*.

6. The Prize for the best English Essay by a member of the Junior Class, on "Wellington," to *Robert Murray Hogg*.

7. The Sophomore Prize for the best Declamation to *Oliver Huckel*, with Honorable mention of *Joseph Sigmund Levin*.

8. The Matriculate Latin Prize for the best entrance examination on the Elements of Latin Prose Composition, 1st to *Lightner Witmer*, 2d, to *Theodore William Kretschmann*.

9. The Matriculate Greek Prize for the best examination on the Elements of Greek Prose Composition, 1st to *Horace Clark Richards;* 2d, equally to *Theodore William Kretschmann* and *Lightner Witmer*.

10. The Prize offered by the Board of Trustees to the Scientific Classes for Improvement in Drawing and for general good conduct, to *James Cornell Biddle, Jr.*, with Honorable mention of *Howard Mellor* and *John Richard Savage, Jr.*

Digitized by Google

11. The "H. La Barre Jayne Prize," to *Franklin Derstine Hartzell*, with Honorable Mention of *Horace Clark Richards*. Subject: "William Penn."

12. "The Joseph Warner Yardley Memorial Prize," to *George Whitefield Chance*. Subject: "The Conditions of American Labor as affected by Tariff Lgeislation."

13. "The Van Nostrand Prize," to *Charles Herman Haupt*.

II. By the Board of Trustees—

1. "The Henry Reed Prize," to *Mark Wilks Collet*, for his Essay on "Carlyle."

III. By the Faculty of Law—

1. "The Sharswood Prize," to *Robert Ralston*. Subject: "The Principles of Sale: their application to the sale of an undivided share."

2. The Meredith Prize," to *Joseph S. Clark*, Subject: "Car Trust Bonds."

3. "The Faculty Prize," divided equally between *Ferree Brinton*, of the Senior Class, and *John Blanchard*, of the Junior Class.

IV. By the Auxiliary Faculty of Medicine—

"The George B. Wood Alumni Prize," to *Ernest Wende, M.D.*, for his Essay entitled "The Geology of Erie Co., State of New York."

May 1st, 1885.

V. By the Faculty of Medicine—

1. The "*Medical News* Prize" for sufficiently meritorious thesis, was awarded to *Meier L. Jelovitz*, for his thesis on "Bubonic Plague."

2. Alumni Prize of Fifty Dollars, to *Frank S. Sutton*, of California, for his thesis on the "Post-mortem Absorption of Arsenic."

3. The "Morbid Anatomy Prize," of a Zentmayer's Histological Microscope to *Francis E. E. Emery*, of Argentine Republic, for his thesis on "Parenchymatous Nephritis," with Honorable Mention of the theses of *Thomas Hubbard*, of Ohio; and *Wm. V. Nichols*, of New Jersey.

4. The "Henry M. Beates" Prize of Fifty Dollars, for the highest general average attained in examinations, to *Fred. A. Packard*.

5. "Demonstrators' Prizes," by the Demonstrator of Surgery, Dr. J. Wm. White. The First Prize for proficiency in bandaging and operating, a copy of Agnew's Surgery, to *Edw. G. Rhoads*. Second Prize, a pocket case of instruments, to *Fred. A. Packard*.

6. "Anatomical Prizes" by Dr. John B. Deaver. A Prize of Thirty Dollars to the member of the graduating class who shall present the best record of Anomalies found in the Anatomical Room, to *Thomas D. King*, of Ohio.

Digitized by Google

7. Of two special Prizes offered by Dr. Spencer Morris, for marked proficiency in Differential Diagnosis and Hygiene, the award to be made by a special competitive examination, the First Prize of Fifty Dollars was awarded to *Fred. A. Packard.* The Second of Twenty Dollars, to *Thomas D. King*, of Ohio.

SUMMARY.

Professors, Lecturers, and Instructors.

College Department,	39	
Department of Medicine, including Hospital Service,	73	
" " " (Auxiliary Faculty),	6	
" " Dentistry,	26	
" " Veterinary Medicine,	14	
" " Law,	7	
" " Philosophy,	15	
" " Biology,	7	
Emeritus Professors,	6	
		193
Repeated,		45
Total,		148

Students.

College Department,	380	
Department of Medicine,	383	
" " " (Auxiliary Faculty),	23	
" " Dentistry,	97	
" " Veterinary Medicine,	42	
" " Law,	123	
" " Philosophy,	4	
" " Biology (excluding College Department),	8	
Post-Graduate Course in Law	9	
		1069
Repeated,		41
Total,		1028

Digitized by Google

CONTENTS.

	Page.
Ground Plan of the University.—The Buildings and Property,	3
Calendar,	4–6
University of Pennsylvania,	7–13
Historical Sketch of the Foundation of the University; the several Charters and Acts of Assembly regulating its government,	7–12
Departments of the University,	13
Trustees,	14–15
Chairmen of Standing Committees,	15
Officers,	16–22
College Department,	23–59
Faculty,	23–24
Instructors,	24
Undergraduates,	24–33
Post-Seniors,	24–25
Seniors,	25–26
Juniors,	26–28
Sophomores,	29–30
Freshman,	30–31
Course in Music,	32
Special Students,	32
Partial Students,	32–33
Subdivision of Faculty and Courses,	33
Degrees,	33
Public Lectures,	34
Fees,	34
Scholarships,	34–35
Annual Examinations,	35
Prizes,	35–37
Societies,	37
The Course in Arts,	37–40
Entrance Examination,	37–38
Course of Study,	38–39

Digitized by Google

(*The Course in Arts.*)
Freshman Class, ... 38
Sophomore Class, ... 38
Junior Class, ... 39
Senior Class, ... 39
Partial Courses, ... 40
Degrees, ... 40
The Courses in the Towne Scientific School, ... 40–49
Object, Studies and Courses, ... 40
Entrance Examinations, ... 41
Course of Study (Preliminary), ... 41–42
Freshman Year, ... 41
Sophomore Year, ... 42
Technical Courses, ... 42–49
Junior Year, ... 42–43
Studies pursued by whole class, ... 42
1. Studies pursued by the Chemical Section, . . . 42
2. Studies pursued by the Geological and Mining Section, ... 42
3. Studies pursued by the Civil Engineering Section, ... 42–43
4. Studies pursued by the Dynamical Engineering Section, ... 43
5. Studies pursued by the Architectural Section, . 43
Senior Year, ... 43–45
Studies pursued by the Whole Class, ... 43
1. Studies pursued by the Chemical Section, . . . 43–44
2. Studies pursued by the Geological and Mining Section, ... 44
3. Studies pursued by the Civil Engineering Section, ... 44–45
4. Studies pursued by the Dynamical Engineering Section, ... 45
5. Studies pursued by the Architectural Section, . 45
Post-Senior Class, ... 45–47
Studies pursued by the Whole Class, ... 45
1. Studies pursued by the Chemical Section, . . . 45–46
2. Studies pursued by the Geological and Mining Section, ... 46
3. Studies pursued by the Civil Engineering Section, ... 46

Digitized by Google

(*The Courses in the Towne Scientific School.*)
4. Studies pursued by the Dynamical Engineering Section, ... 46–47
5. Studies pursued by the Architectural and Drawing Section, ... 47
Methods of Study, ... 47–49
Special Courses, ... 49
Library, ... 49
Degrees, ... 49
A Course in Philosophy for Undergraduates, ... 50–53
Course of Instruction, ... 50
Entrance Examinations, ... 50
Course of Study, ... 50–51
Freshman Class, ... 50
Sophomore Class, ... 50–51
Junior Class, ... 51
Senior Class, ... 51
Mode of Instruction, ... 52–53
The Course in Finance and Economy in the Wharton School, . . . 53–57
Aim and Scope of School, ... 53–54
Library, ... 54
Course of Study, ... 54–56
Freshman Year, ... 54–55
Sophomore Year, ... 55
Junior Year, ... 55
Senior Year, ... 55–56
Mode of Instruction, ... 56–57
Examinations for Admission and Advanced Standing, . . 57
Degrees, ... 57
Roster of Courses of Study in the College Faculty, ... 58
The Course in Music, ... 59
DEPARTMENT OF MEDICINE, ... 60–92
Faculty, ... 60
Clinical Professors, ... 60
Assistant Professor, ... 60
Auxiliary Professors, ... 61
Lecturers and Demonstrators, ... 61–62
Assistants in Chemical Laboratory, ... 62
Assistant Demonstrators of Anatomy, ... 62
Non-Resident Examiners, ... 62–63
Hospital Staff, ... 63

Digitized by Google

(*Department of Medicine.*)
Dispensary Service, ... 64
Matriculates, ... 65–74
Fourth Year, ... 65
Third Year, ... 65–68
Second Year, ... 68–70
First Year, ... 71–74
Special Students, ... 74
Organization of the School, ... 74–75
Admission, ... 75–76
Course of Study, ... 76–77
Outline of the Course, ... 77–78
First Year, ... 77
Second Year, ... 77–78
Third Year, ... 78
Fourth Year, ... 78
Text-Books, ... 79
Order of Lectures, Daily, ... 80–83
First Year, ... 80
Second Year, ... 81
Third Year, ... 82
Fourth Year, ... 83
Roster of Bedside Instruction and Special Clinics for Students of the Third Year, Session 1885–6, ... 84-85
Special Roster of Laboratory Instruction in Histology, Biology, Osteology, and Syndesmology, for students of the First year, Session 1885–86, ... 85
Graduation, ... 85–86
Additional Instruction, ... 86
Arrangement of Sessions, ... 86
Scholarships, ... 86–87
Facilities for Instruction, ... 87–89
The Laboratory Building, ... 89–90
The University Hospital, ... 90–91
Other Hospitals and Hospital Clinics, ... 19
Medical Societies, ... 91
Prizes, ... 92
AUXILIARY DEPARTMENT OF MEDICINE, ... 93–97
Faculty, ... 93
Matriculates, ... 93
Purpose of Department, ... 94

Digitized by Google

(*Auxiliary Department of Medicine.*)
Fees, ... 94
Degrees, ... 94
Special Students, ... 94
Prizes, ... 94–95
Museum, ... 95
Course of Study, ... 95–96
Text-Books and Works of Reference, ... 97
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, ... 98–100
Board of Managers and Chairmen of Standing Committees, 98
Capacity and General Regulations, ... 99–100
Summary of Operations in 1884, ... 100
DEPARTMENT OF DENTISTRY, ... 101–110
Faculty, ... 101
Clinical Instructors, ... 101
Demonstrators, ... 101
Matriculates, ... 102–103
Second Year, ... 102–103
First Year, ... 103
Course of Study, ... 104–105
First Year 104
Second Year, ... 105
Course of Instruction, ... 105–107
Clinical Instruction, ... 107
Infirmary and Laboratory, ... 107
The Stillé Medical Library, ... 107
Museum and Cabinets, ... 107
Sessions, ... 108
Examinations, ... 108
Degrees, ... 108–109
Text-Books and Works of Reference, ... 109
Summary of Practical Work in Operative and Mechanical Departments, ... 110
DEPARTMENT OF VETERINARY MEDICINE, ... 111–114
Faculty, ... 111
Demonstrators, ... 111
Matriculates, ... 112
Second Year, ... 112
First Year, ... 112
Special Students, ... 112
Aim and Facilities of the Department, ... 113

Digitized by Google

Department of Veterinary Medicine.
Requisites for Admission, ... 113
Course of Instruction, ... 113
Examinations and Expenses, ... 114
DEPARTMENT OF BIOLOGY, ... 115–119
Faculty, ... 115
Matriculates, ... 115
First Year, ... 115
Second Year, ... 115
Partial Students, ... 115
Aim and Facilities of the Department, ... 116
Course for Students in the College Department, ... 116
General Course in Biology, ... 116–117
Instruction for Graduate Students, ... 118
Investigation and Advanced Instruction, ... 119
First Year, ... 117
Second Year, ... 117
Mode of Instruction, ... 117–119
Fees 119
Admissions, Examinations and Degrees, ... 119
DEPARTMENT OF LAW, ... 120–128
Faculty, ... 120
Matriculates, ... 120–123
Senior Class 120–121
Junior Class 121–123
Special Students, ... 123
Course of Study 123
Fees, ... 124
Examinations and Degrees, ... 124–125
Prizes, ... 125
Admission to the Bar, ... 125–126
Examination Questions, May, 1885, ... 126–128
By Professor Hare, ... 126
" " Mitchell, Real Estate and Conveyancing, 126–127
" " Parsons, ... 127
" " Bispham, ... 127–128
DEPARTMENT OF PHILOSOPHY, ... 129–135
Faculty, ... 129
Matriculates, ... 129
Object of Department, ... 129
Courses of Study, ... 130–131

Digitized by Google

(*Department of Philosophy.*)
Fees, ... 131
Degree, ... 131
Post-Graduate Course in Law, ... 131–135
Matriculates, ... 131
Aim of the Course, ... 132–133
Course of Study, ... 133–134
Admissions and Fees, ... 134
Examination and Degrees, ... 134
Annual Examination Questions, ... 134–135
DEPARTMENT OF PHYSICAL EDUCATION, ... 136–137
LIBRARY, ... 138
FEES AND EXPENSES, ... 139–143
Tuition Fees, ... 139
Graduation Fee, ... 139
Certificate Fee, ... 139
College Department, ... 140
Medical Department, ... 140–141
Auxiliary Department of Medicine, ... 142
Department of Dentistry, ... 142
Department of Biology, ... 142
Department of Veterinary Medicine, ... 143
Department of Law, ... 143
Department of Philosophy, ... 143
Post-Graduate Course of Law, ... 143
Accommodations, ... 143
Expenses, ... 143
DEGREES, HONORS, AND PRIZES, 1884–85, ... 144–153
Honorary Degrees, ... 144
Degrees in Course—Certificates, ... 144–149
Honors, ... 149–151
Prizes, ... 151–153
Summary, ... 153

Digitized by Google

37873
P9H

UNIVERSITY

OF

PENNSYLVANIA

CATALOGUE AND ANNOUNCEMENTS

1886-87

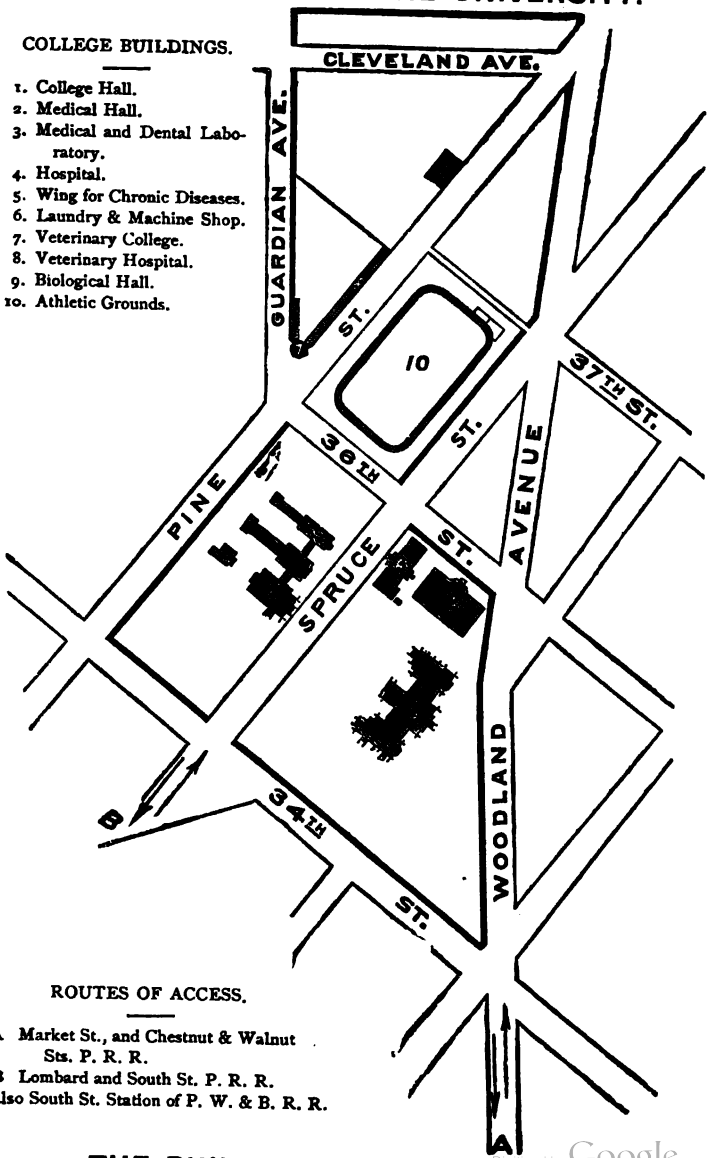
PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1886

Digitized by Google

Press of GLOBE PRINTING HOUSE, Philadelphia.

Digitized by Google

GROUND PLAN OF THE UNIVERSITY.



THE BUILDINGS AND PROPERTY.

Digitized by Google

1886	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JULY.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
	...	...	...	...	...	...	...
AUG. .	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
SEPT.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	...	...
OCT. .	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
NOV.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
DEC. .	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...

1887	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JAN. .	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
FEB. .	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	...	...	...	...	...
MAR.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
APRIL	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	...	...	...	...	...	...	...
MAY .	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
JUNE	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	...	...

1887	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
JULY.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
AUG. .	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...
SEPT.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	...
OCT. .	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
NOV.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	...	...	...
DEC. .	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

Digitized by Google

CALENDAR.

	1886.	
Sept.	15, Wednesday.	First Term begins: College Department and Department of Biology. 10 A.M.
Oct.	1, Friday.	Winter Session begins: Departments of Medicine, Law, Dentistry, Veterinary Medicine, and Auxiliary Department of Medicine.
"	4, Monday.	First Term begins: Department of Music.
Nov.	25, Thursday.	Thanksgiving Day. (Holiday.)
Dec.	24, Friday.	Christmas Recess begins.
	1887.	CHRISTMAS RECESS.
Jan.	3, Monday.	Christmas Recess ends. 9 A.M.
"	27, Thursday.	Mid-Year Examinations end: College Department.
"	28, Friday.	First Term ends: College Department (Chapel at 10 A.M.) and Department of Law.
Feb.	1, Tuesday.	Second Term begins: College Department, and Departments of Biology and Law.
April	6, Wednesday.	Easter Recess begins: College Department, 5 P.M.
"	8, Friday.	Good Friday. (Legal Holiday.)
		EASTER RECESS.
"	11, Monday.	Final and Term Examinations begin: Departments of Medicine and Dentistry.
"	20, Wednesday.	Examination for Resident Physicians, University Hospital. 12 Noon.
"	27, Wednesday.	Easter Recess ends: College Department. 9 A.M.
May	2, Monday.	Annual Commencement: Departments of Medicine and Dentistry. 12 Noon.
"	3, Tuesday.	Spring Session opens: Department of Dentistry.
"	9, Monday.	Spring Session opens: Department of Medicine. 11 A.M.
"	12, Thursday.	Senior Examinations, College Department, end.
"	20, Friday.	Examinations begin: Department of Law and Auxiliary Department of Medicine.
"	31, Tuesday.	Second Term ends: Department of Law.

Digitized by Google

June	13, Monday.	Announcement of Results, Annual Examinations: College Department. 10 A.M.
"	15, Wednesday.	Annual Commencement: College Department, Departments of Law and Biology, and Auxiliary Department of Medicine. 11 A.M.
	16 to 23.	Entrance Examinations: College Department. 9 A.M. each day.

SUMMER VACATION.

Sept.	6 to 14.	Entrance Examinations: College Department. 9 A.M. each day.
"	15, Thursday.	First Term begins: College Department and Department of Biology. 10 A.M.
"	15, Thursday.	Introductory Course opens: Departments of Medicine, and Dentistry. 11 A.M.
"	23, Friday.	Competitive Examination for Medical Scholarships. 12 Noon.
"	27, Tuesday.	Examinations for Admission to Advanced Standing, and Re-examination of Undergraduates, Departments of Medicine and Dentistry. 12 Noon.
"	28, Wednesday.	Entrance Examination: Departments of Medicine and Veterinary Medicine. 12 Noon.
Oct.	1, Saturday.	Winter Session opens: Departments of Medicine, Dentistry and Veterinary Medicine. 12 Noon.
"	1, "	First Term begins: Department of Law.
"	3, Monday.	First Term begins: Department of Music and Auxiliary Department of Medicine.

Digitized by Google

University of Pennsylvania.

A pamphlet, called: *Proposals Relative to the Education of Youth in Pennsylvania*, written in 1749 by Dr. FRANKLIN, led to an association, by certain citizens of Philadelphia, for the purpose of founding a School on the lines suggested by that wise counsellor. Over two thousand pounds, equivalent to at least forty thousand dollars at the present time, were raised and a building, which had been erected to accommodate the thronged congregations of the celebrated Whitfield, was purchased, and in 1751 the Academy, consisting of an English, a Mathematical, and a Latin School, each under a Master, with subordinate tutors and ushers, was formally opened. So successful was the undertaking that in two years the Trustees applied to the Proprietaries for a Charter, which was thus granted: —

THOMAS PENN and RICHARD PENN, true and absolute proprietors and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent, and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumstead, Thomas White, William Cole-

Digitized by Google

man, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favouring such pious, useful, generous, and charitable designs, hoping, through the favour of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do*, for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others, as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania. . . . . .

In witness whereof, we have caused these our letters to be made patent; in the twenty-seventh year of the reign of our sovereign lord, George the Second, who now is king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-three."

Under the skillful training of the learned Rev. William Smith the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring Collegiate Degrees. The petition was granted substantially as follows:

Digitized by Google

Thomas Penn and Richard Penn, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting:

And whereas the said trustees have, ... represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well constituted seminaries, youth are entitled to their first *degree. Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, ... to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and the English tongue, which Provost, Vice-Provost, and Professors, so constituted and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania;* and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and charitable school: *Provided always*, That the said trustees, the Provost, and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. . . . . excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania, to qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties

Digitized by Google

above mentioned, any thing in this provision to the contrary notwithstanding . . . . *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M.A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M.A., to be the first and present Vice-Provost of the same . . . . *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, ... to admit any the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. . . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any such degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy . . . . . .

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five.

The First Commencement was held May 17th, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times which followed, the Provost, Mr. Smith, was a Tory of so pronounced a type that he was thrown into prison by the Legislature; but, in faithfulness to his sworn duties as Provost, he received his classes in gaol, and continued his instructions to them there while still a prisoner. He was set at liberty, however, for the purpose of going to England to make a personal appeal to the king, and his kindly reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bestead they sent him back to England to raise funds for an endowment. It happened that King's College (now

Digitized by Google

Columbia) in New York was in similar straits and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them," and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all churches, and succeeded in raising a very considerable endowment for each college.

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler, D.D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the provost's, collection, in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion. It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind; and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied."

A committee having been appointed to frame a fundamental *Resolve* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present

Digitized by Google

wide and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the church of England, or those dissenting from them (*in any future election to the principal offices mentioned in the aforesaid letter*), be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion, than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College in the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follow:

First. That the name of the institution be "*The University of Pennsylvania*," and that it be stationed in the city of Philadelphia.

Second. That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the university of Pennsylvania; and that the governor shall be president.

SECT. 2. *And be it further enacted*, That the said twenty-four persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance for ever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said university shall at all times be stationed in the city of Philadelphia.

Thus established, the University has advanced with the times, and now comprises the following departments: —

Digitized by Google

THE COLLEGE DEPARTMENT, including
- THE COURSE IN ARTS,
- THE TECHNICAL COURSES IN SCIENCE,
  (The Towne Scientific School),
- A COURSE IN PHILOSOPHY,
- THE COURSE IN FINANCE AND ECONOMY,
  (The Wharton School),
- THE COURSE IN MUSIC.

THE DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF LAW.
THE AUXILIARY DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF DENTISTRY.
THE DEPARTMENT OF PHILOSOPHY.
THE DEPARTMENT OF VETERINARY MEDICINE.
THE DEPARTMENT OF BIOLOGY.
THE DEPARTMENT OF PHYSICAL EDUCATION.

Digitized by Google

PROVOST OF THE UNIVERSITY,

WILLIAM PEPPER, M.D., LL.D.,

President *pro tempore* of the Board of Trustees.

TRUSTEES.

THE GOVERNOR OF PENNSYLVANIA, *ex-officio* President of the Board.
REV. HENRY J. MORTON, D.D.,
FREDERICK FRALEY, LL.D.,
REV. CHARLES W. SCHAEFFER, D.D.,
RT. REV. WILLIAM BACON STEVENS, D.D., LL.D.,
JOHN ASHHURST,
WILLIAM SELLERS,
REV. RICHARD NEWTON, D.D.,
J. VAUGHAN MERRICK,
RICHARD WOOD,
S. WEIR MITCHELL, M.D., LL.D.,
CHARLES C. HARRISON,
JAMES H. HUTCHINSON, M.D.,
REV. GEORGE DANA BOARDMAN, D.D.,
WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.,
WHARTON BARKER,
SAMUEL DICKSON,
JOHN SCOTT,
JAMES MACALISTER,
JOHN C. SIMS, JR.,
HENRY H. HOUSTON.
JOSEPH D. POTTS,
HON. HENRY REED,
SAMUEL W. PENNYPACKER.

REV. JESSE Y. BURK, Secretary, University.
WHARTON BARKER, Treasurer, 125 South Fourth-st.

Digitized by Google

CHAIRMEN OF STANDING COMMITTEES FOR THE YEAR 1886–7.

WAYS AND MEANS: . . . . . MR. HARRISON, 101 S. Front-st.
BUILDINGS, ESTATES AND PROPERTY: . MR. WOOD, 400 Chestnut-st.
LIBRARY: . . . . . DR. FURNESS, 222 West Washington Square.
DEPARTMENT OF ARTS: . . . . . MR. FRALEY, 1000 Walnut-st.
DEPARTMENT OF MEDICINE: . . . DR. MITCHELL, 1524 Walnut-st.
DEPARTMENT OF LAW: . . . . . MR. SCOTT, 3808 Chestnut-st.
DEPARTMENT OF SCIENCE: . . . . . MR. MERRICK, Roxboro'.
DEPARTMENT OF FINANCE AND ECONOMY: MR. BARKER, 125 S. Fourth-st.
DEPARTMENT OF VETERINARY MEDICINE: . . . DR. HUNT, 1300 Spruce-st.
DEPARTMENT OF PHYSICAL EDUCATION: . . . MR. DICKSON, 32 S. Third-st.
DEPARTMENT OF BIOLOGY: . . . . . MR. MERRICK, Roxboro'.

Digitized by Google

OFFICERS.*

	Residence.
WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY.	1811 Spruce-st.
E. OTIS KENDALL, LL.D., VICE-PROVOST.	3826 Locust-st.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.	1302 Filbert-st.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.	1800 Spruce-st.
FRANCIS A. JACKSON, A.M., Professor of the *Latin Language and Literature*.	University.
E. OTIS KENDALL, LL.D., THOMAS A. SCOTT Professor of *Mathematics*.	3826 Locust-st.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology and Mining*.	1008 Clinton-st.
P. PEMBERTON MORRIS, A.M., LL.D., Emeritus Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.	404 Locust-st.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics* and of the *Diseases of Women and Children*.	1331 Spruce-st.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.	3900 Spruce-st.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.	117 S. 20th-st.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy*, and *General Therapeutics*, and Clinical Professor of *Nervous Diseases*.	1925 Chestnut-st.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence*, including *Toxicology*.	3346 Walnut-st.

* The names are given in the order of accession to office.

Digitized by Google

CHARLES J. STILLÉ, LL.D.,
Emeritus JOHN WELSH CENTENNIAL Professor of *History* and *English Literature.* 2201 St. James's Place.

OSWALD SEIDENSTICKER, PH.D. (Göttingen),
Professor of the *German Language and Literature.* 309 S. 40th-st.

JOHN G. R. McELROY, A.M.,
Professor of *Rhetoric* and the *English Language.* 115 S. 20th-st.

J. I. CLARK HARE, LL.D.,
Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, *Commercial*, and *Civil Law.* 118 S. 22d-st.

D. HAYES AGNEW, M.D., LL.D.,
JOHN RHEA BARTON Professor of *Surgery*, and Professor of *Clinical Surgery.* 1601 Walnut-st.

REV. ROBERT E. THOMPSON, A.M.,
JOHN WELSH CENTENNIAL Professor of *History* and *English Literature.* Jenkintown, P. O.

FREDERICK A. GENTH, PH.D. (Marburg),
Professor of *Chemistry* and *Mineralogy.* 3937 Locust-st.

SAMUEL B. HOWELL, M.D.,
Professor of *Mineralogy* and *Geology.* 1513 Green-st.

GEORGE F. BARKER, M.D., PH.B.,
Professor of *Physics.* 3909 Locust-st.

E. COPPÉE MITCHELL, LL.D.,
Professor of the *Law of Real Estate* and *Conveyancing* and of *Equity Jurisprudence.* 518 Walnut-st.

LEWIS M. HAUPT, A.M., C.E.,
Professor of *Civil Engineering.* University.

WILLIAM PEPPER, M.D., LL.D.,
Professor of the *Theory and Practice of Medicine* and of *Clinical Medicine.* 1811 Spruce-st.

WILLIAM GOODELL, M.D.,
Professor of *Clinical Gynæcology.* 500 N. 20th-st.

WILLIAM F. NORRIS, M.D.,
Clinical Professor of *Diseases of the Eye.* 1526 Locust-st.

GEORGE STRAWBRIDGE, M.D.,
Clinical Professor of *Diseases of the Ear.* 1500 Walnut-st.

JAMES PARSONS, A.M.,
Professor of the Law of *Personal Relations* and *Personal Property.* 1534 Locust-st.

THOMAS W. RICHARDS, A.M.,
Professor of *Drawing* and *Architecture.* 4822 Fairmount Ave.

Digitized by Google

GEORGE A. KŒNIG, PH.D. (Heidelberg),
Professor of *Mineralogy* and *Metallurgy*. 3207 Summer-st.
SAMUEL P. SADTLER, PH.D. (Göttingen),
Assistant Professor of *Chemistry*. 204 N. 34th-st.
JAMES TYSON, M.D.,
Professor of *General Pathology* and *Morbid Anatomy*. 1506 Spruce-st.
LOUIS A. DUHRING, M.D.,
Clinical Professor of *Skin Diseases*. 1417 Spruce-st.
HUGH A. CLARKE, MUS. DOC.,
Professor of the *Science of Music*. 223 S. 38th-st.
FREDERICK A. MUHLENBERG, D.D.,
Professor of the *Greek Language* and *Literature*. 4307 Walnut-st.
JOSEPH T. ROTHROCK, M.D., B.S.,
Professor of *Botany*. West Chester, Pa.
WILLIAM D. MARKS, PH.B., C.E.,
WHITNEY Professor of *Dynamical Engineering*. 4304 Walnut-st.
THEODORE G. WORMLEY, M.D., LL.D.,
Professor of *Chemistry* and *Toxicology*. University.
JOHN ASHHURST, JR., M.D.,
Professor of *Clinical Surgery*. 2000 W. De Lancey Place.
OTIS H. KENDALL, A.M., PH.D.,
Assistant Professor of *Mathematics*. 3826 Locust-st.
*JOSEPH G. RICHARDSON, M.D.,
Professor of *Hygiene*. 3238 Chestnut-st.
CHARLES J. ESSIG, M.D., D.D.S.,
Professor of *Mechanical Dentistry* and *Metallurgy*. 1700 Locust-st.
EDWIN T. DARBY, M.D., D.D.S.,
Professor of *Operative Dentistry* and *Dental Histology*. 4000 Chestnut-st.
MORTON W. EASTON, PH.D.,
Professor of *Comparative Philology*. 224 S. 43d-st.
JAMES TRUMAN, D.D.S.,
Professor of *Dental Pathology*, *Therapeutics*, and *Materia Medica*. 3249 Chestnut-st.
FREDERICK A. GENTH, JR., M.S.,
Assistant Professor of *Chemistry*. 4014 Chestnut-st.
ALBERT S. BOLLES, PH.D.,
Professor of *Mercantile Law* and *Practice*. Aldine Hotel.
RUSH SHIPPEN HUIDEKOPER, M.D., V.S. (Alfort),
Professor of *Veterinary Anatomy* and *Pathology*. 111 S. 20th-st.
EDMUND J. JAMES, PH.D. (Halle),
Professor of *Finance* and *Administration*. 3718 Locust st.

* Deceased, Nov. 14, 1886.

Digitized by Google

JOHN BACH McMASTER, A.M.,
Professor of *American History*. University.

GEORGE TUCKER BISPHAM, A.M.,
Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*. 402 Walnut-st.

ROBERT MEADE SMITH, M.D.,
Professor of *Comparative Physiology*. 332 S. 21st-st.

HORACE JAYNE, M.D.,
Professor of *Vertebrate Morphology*. 1826 Chestnut-st.

WILLIAM OSLER, M.D.,
Professor of *Clinical Medicine*. 131 S. 15th-st.

EDWARD T. BRUEN, M.D.,
Assistant Professor of *Physical Diagnosis*. 1814 Rittenhouse Square.

LOUIS STARR, M.D.,
Clinical Professor of *Diseases of Children*. 1922 Spruce-st.

WILLIAM L. ZUILL, M.D., D.V.S.,
Professor of *Surgical Pathology*. University.

REV. GEORGE S. FULLERTON, A.M., B.D.,
Adjunct Professor of *Intellectual and Moral Philosophy*. University.

EDWARD T. REICHERT, M.D.,
Professor of *Physiology*. University.

J. WILLIAM WHITE, M.D.,
Professor of *Genito-Urinary Diseases*, Director of *Physical Education*, Demonstrator of *Surgery*, and Assistant Surgeon in University Hospital. 1810 Rittenhouse Square

REV. JOHN P. PETERS, PH.D.,
Professor of *Hebrew*. 4408 Chestnut-st.

JOHN A. RYDER,
Professor of *Comparative Embryology*. University.

DANIEL G. BRINTON, M.D.,
Professor of *American Archæology* and *Linguistics*. 115 S. 7th-st.

HERMANN V. HILPRECHT, PH.D.,
Professor of *Assyrian*. 1031 Walnut-st.

N. ARCHER RANDOLPH, M.D.,
Professor of *Hygiene*. 1004 Walnut-st.

WILLIAM POWELL WILSON, M.D.,
Professor of *Anatomy* and *Physiology of Plants*. University.

MORRIS JASTROW, JR., PH.D.,
Professor of *Arabic* and *Rabbinical Literature*. 925 N. 8th-st.

Digitized by Google

ROLAND G. CURTIN, M.D.,
Lecturer on *Physical Diagnosis*, and Asst. Physician in University Hospital. 22 S. 18th-st.

CHARLES K. MILLS, M.D.,
Lecturer on *Mental Diseases*. 113 S. 19th-st.

SAMUEL D. RISLEY, M.D.,
Instructor in *Ophthalmology*, and Ophth. Surgeon in University Hospital. 1722 Walnut-st.

DE FOREST WILLARD, M.D.,
Lecturer on *Orthopædic Surgery*. 1818 Chestnut-st.

ELLIOTT RICHARDSON, M.D.,
Lecturer on *Clinical and Operative Obstetrics*, and Demonstrator of *Operative Obstetrics*. 1829 Spruce-st.

ADOLPH W. MILLER, M.D.,
Lecturer on *Materia Medica and Pharmacy*, and Instructor in *Practical Pharmacy*. University.

JOHN MARSHALL, M.D., NAT.SC.D. (Tübingen),
Demonstrator of *Practical Chemistry*. University.

GEORGE A. PIERSOL, M.D.,
Demonstrator of *Normal Histology*. 1110 Spring Garden-st.

HENRY F. FORMAD, M.D.,
Demonstrator of *Pathological Histology* and of *Morbid Anatomy*, Lecturer on *Experimental Pathology*, and Librarian of the Stillé Medical Library. 3535 Locust-st.

WALTER M. L. ZIEGLER, M.D.,
Instructor in *Otology*, and Aural Surgeon in University Hospital. 2007 Columbia Ave.

CARL SEILER, M.D.,
Instructor in *Laryngology*. 1346 Spruce-st.

ALBERT L. A. TOBOLDT, M.D.,
Assistant Demonstrator of *Practical Pharmacy*. 207 Vine-st.

HARRY R. WHARTON, M.D.,
Instructor in *Clinical Surgery*, and Assistant Surgeon in University Hospital, and Lecturer on the *Surgical Diseases of Children*. 1405 Locust-st.

RICHARD H. HARTE, M.D.,
Demonstrator of *Osteology*, and Assistant Surgeon in University Hospital. 332 S. 17th-st.

ROBERT HUEY, D.D.S.,
Lecturer on *Operative Dentistry*. 330 S. 15th-st.

WILLIAM DIEHL, D.D.S.,
Demonstrator of *Operative Dentistry*. 1513 Walnut-st.

Digitized by Google

JOHN B. DEAVER, M.D.,	
Demonstrator of *Anatomy.*	1610 Vine-st.
FRANCIS X. DERCUM, M.D.,	
Instructor in *Nervous Diseases.*	636 N. 8th-st.
THOMAS R. NEILSON, M.D.,	
Instructor in *Venereal Diseases.*	
EDMUND W. HOLMES, M.D.,	
Assistant Demonstrator of *Anatomy.*	1523 Green-st.
JUDSON DALAND, M.D.,	
Instructor in *Clinical Medicine.*	319 S. 18th-st.
WILLIAM A. EDWARDS, M.D.,	
Instructor in *Clinical Medicine.*	1210 Spruce-st.
EDWIN S. CRAWLEY, B.S.,	
Instructor in *Mathematics.*	University.
J. JUDSON EDWARDS, D.D.S.,	
Assistant Demonstrator of *Mechanical Dentistry.*	56 N. 38th-st.
HENRY A. WASMUTH, E.M.,	
Instructor in *Mining.*	3709 Woodland-Ave.
J. HENDRIE LLOYD, M.D.,	
Instructor in *Electro-Therapeutics.*	200 S. 40th-st.
A. SYDNEY ROBERTS, M.D.,	
Instructor in *Orthopædic Surgery.*	131 S. 15th-st.
GEORGE E. DE SCHWEINITZ, M.D.,	
Prosector to the Chair of *Anatomy.*	1330 Spruce-st.
HENRY W. STELWAGON, M.D.,	
Instructor in *Dermatology.*	147 Spruce-st.
JAMES G. BARNWELL, A.M.,	
Librarian.	327 N. 9th-st.
EDWARD P. CHEYNEY, A.M.,	
Instructor in *History.*	4301 Haverford-st.
GOOLD H. BULL, Assistant Engineer U. S. N.,	
Instructor in *Mechanical Engineering.*	University.
ARTHUR W. GOODSPEED, B.A.,	
Assistant in *Physics.*	University.
JOSEPH W. NOBLE, D.D.S.,	
Demonstrator of *Mechanical Dentistry.*	1513 Walnut-st.
ALEXANDER GLASS, V.S.,	
Demonstrator of *Veterinary Pharmacy.*	2006 Bainbridge-st.
WILLIAM L. TAYLOR, M.D.,	
Instructor in *Gynæcology.*	1440 N. 12th-st.
GWILLYM G. DAVIS, M.D.,	
Assistant Demonstrator of *Surgery.*	1817 Mt. Vernon-st.

Digitized by Google

GEORGE G. MILLIKEN, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 3614 Walnut-st.
CHARLES S. DOLLEY, M.D.,
Instructor in *General Biology.* University.
WILLIAM B. ROGERS, D.V.S.,
Demonstrator of *Veterinary Anatomy.* Westville, N. J.
HUGO A. RENNERT, B.S., LL.B.,
Instructor in *French and German.* University.
LOUIS JACK, D.D.S.,
Lecturer on *Operative Dentistry.* 1533 Locust-st.
J. FOSTER KIRK, A.M.,
Lecturer on *History.* Germantown, Pa.
EDWARD MARTIN, M.D.,
Assistant Instructor of *Physical Education*, Instructor in *Operative Surgery* and Assistant Demonstrator of Surgery. 113 S. 16th-st
HOBART A. HARE, M.D.,
Assistant in *Physical Diagnosis* and Demonstrator of *Therapeutics.* 113 S. 22d-st.
W. FRANK HAEHNLEN, M.D.,
Assistant Demonstrator of *Normal Histology.* University.
JOHN K. MITCHELL, M.D.,
Instructor in *Clinical Medicine.* 1524 Walnut-st.
JAMES E. LODER, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 3932 Locust-st.
BENJAMIN FRANKLIN, B.S., C.E.,
Instructor in *Civil Engineering.* University.
SAMUEL S. EVANS, B.S., C.E.,
Instructor in *Civil Engineering.* University.
FELIX E. SCHELLING, A.M., LL.B.,
Instructor in *English.* Media, Pa.
CHARLES HERMAN HAUPT, B.S.,
Assistant in *Civil Engineering.* 407 N. 32d-st.
D. NEIL HARPER, B.S.,
Assistant in *Analytical Chemistry.* University.
SAMUEL BROWN WYLIE, A.M.,
Instructor in *Mathematics.* University.
CHARLES GILPIN,
Instructor in *Book-keeping.* University.
GEORGE H. CHAMBERS, M.D.,
Assistant Demonstrator of *Normal Histology.*
HENRY B. McFADDEN, D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry.* 3505 Hamilton-st.

Digitized by Google

JAMES McCAUSLAND, M.D.,
Acting Assistant Demonstrator of *Anatomy*.
GEORGE F. KEMP, M.D.,
Demonstrator of *Physiology*.
JAMES McKEEN CATTELL, PH.D.,
Lecturer on *Psycho-physics*. 1334 Chestnut-st.
EDWIN ALANSON KELLEY,
Assistant in *Mammalian Anatomy*. University.
JAMES K. YOUNG, M.D.,
Assistant Demonstrator of *Surgery*.

JOHN B. WEBSTER,
Clerk to the College Faculty. University.
WM. H. SALVADOR,
Clerk to the Faculty of Medicine. University.
JOHN A. REIMOLD,
Clerk to the Faculty of Dentistry. University.
JOHN H. SALVADOR,
Clerk to the Faculty of Veterinary Medicine.
BARCELONA BASS,
Clerk to the Faculty of Biology.

Digitized by Google

COLLEGE DEPARTMENT.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY, and *ex-officio* President.

E. OTIS KENDALL, LL.D., VICE-PROVOST, *ex-officio* DEAN OF THE FACULTY, and THOMAS A. SCOTT Professor of *Mathematics*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Zoology and Comparative Anatomy*.

FRANCIS A. JACKSON, A.M., Professor of the *Latin Language and Literature*.

OSWALD SEIDENSTICKER, PH.D., Professor of the *German Language and Literature*.

JOHN G. R. McELROY, A.M., Professor of *Rhetoric* and the *English Language*.

J. I. CLARK HARE, LL.D., Professor of *Constitutional Law*.

REV. ROBERT E. THOMPSON, A.M., JOHN WELSH CENTENNIAL Professor of *History* and *English Literature*.

FREDERICK A. GENTH, PH.D., Professor of *Chemistry*.

GEORGE F. BARKER, PH.B., M.D., Professor of *Physics*.

THOMAS W. RICHARDS, A.M., Professor of *Drawing and Architecture*.

LEWIS M. HAUPT, A.M., C.E., Professor of *Civil Engineering*.

GEORGE A. KŒNIG, PH.D., Professor of *Mineralogy and Metallurgy*.

SAMUEL P. SADTLER, PH.D., Assistant Professor of *Chemistry*.

HUGH A. CLARKE, MUS. DOC., Professor of the *Science of Music*.

REV. FREDERICK A. MUHLENBERG, D.D., Professor of the *Greek Language and Literature*.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.

WILLIAM D. MARKS, PH.B., C.E., Whitney Professor of *Dynamical Engineering*.

OTIS H. KENDALL, A.M., PH.D., Assistant Professor of *Mathematics*.

MORTON W. EASTON, PH.D., Professor of *Comparative Philology*, and Instructor in *French*.

Digitized by Google

FREDERICK A. GENTH, JR., M.S., Assistant Professor of *Chemistry.*
ALBERT S. BOLLES, PH.D., Professor of *Mercantile Law and Practice.*
EDMUND J. JAMES, PH.D., Professor of *Public Finance and Administration.*
JOHN B. McMASTER, A.M., Professor of *American History.*
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology.*
REV. GEORGE S. FULLERTON, A.M., B.D., Adjunct Professor of *Intellectual and Moral Philosophy.*
J. WM. WHITE, M.D., Director of *Physical Education.*
REV. JOHN P. PETERS, PH.D., Professor of *Hebrew.*
JOHN A. RYDER, Professor of *Comparative Embryology.*
N. ARCHER RANDOLPH, M.D., Professor in *Physiology.*

JAMES G. BARNWELL, A.M., *Librarian.*

INSTRUCTORS.

EDWIN S. CRAWLEY, B.S., Instructor in *Mathematics.*
HENRY A. WASMUTH, E.M., Instructor in *Mining.*
ARTHUR W. GOODSPEED, A.B., Instructor in *Physics.*
EDWARD P. CHEYNEY, A.M., Instructor in *History.*
GOOLD H. BULL, Assistant Engineer U. S. N., Instructor in *Mechanical Engineering.*
HUGO A. RENNERT, B.S., LL.B., Instructor in *French and German.*
FELIX E. SCHELLING, A.M., LL.B., Instructor in *English.*
BENJAMIN FRANKLIN, B.S., C.E., Instructor in *Civil Engineering.*
SAMUEL S. EVANS, B.S., C.E., Instructor in *Civil Engineering.*
D. NEIL HARPER, B.S., Assistant in *Analytical Chemistry.*
CHARLES GILPIN, Instructor in *Book-keeping.*
CHARLES HERMAN HAUPT, B.S., Instructor in *Civil Engineering.*
SAMUEL BROWN WYLIE, A.M., *Instructor in Mathematics.*

FRANCIS A. JACKSON, *Secretary.*

Digitized by Google

GRADUATE STUDENTS.

POST SENIORS.

COURSE IN SCIENCE.

		CITY ADDRESS.
4. Edgar Augustus Alcott, B.S.,	Mount Holly, N. J.	
4. William Augustus Bigler, B.S.,	Philadelphia,	118 *N. 12th-st.*
2. Amos Peaslee Brown, Jr., B.S.,	Germantown,	*Fisher's Lane.*
1. Abram Trimble Eastwick, B.S.,	Philadelphia,	*Wissahickon Station.*
3. William Salter Freeman, B.S.,	Beverly, N. J.	
4. Theodore Gould, Jr., B.S.,	Philadelphia,	723 *Erie-st.*
4. Thomas Graham Grier, B.S.,	do.	633 *N. 40th-st.*
3. Charles Herman Haupt, B.S.,	do.	407 *N. 32d-st.*
3. Joseph Edward Horn, B.S.,	do.	3717 *Frankford Ave.*
3. Francis Emlen Hoskins, B.S.,	do.	1802 *Pine-st.*
4. Joseph David Israel, B.S.,	do.	1428 *Poplar-st.*
2. James Harmer Knight, B.S.,	do.	1530 *Marshall-st.*
4. Leon Kraft,	do.	1422 *Ridge Ave.*
2. Percy McGeorge, B.S.,	do.	*Merion.*
3. Henry Jackson Mullen, B.S.,	do.	300 *N. 40th-st.*
3. Edward Arnott Pearson, B.S.,	Crum Lynne.	
3. Earl Thomson, B.S.,	Camden, N. J.,	308 *State-st.*
4. David Edward Tracy, B. S.,	Conshohocken, Pa.	
2. Alfred Weeks, Jr.,	Philadelphia,	4051 *Locust-st.*
1. William Daniel Weikel, B.S.,	Merch'tville, N. J.	
2. Samuel Jennings White, B.S.,	Philadelphia,	3329 *Powelton Ave.*
3. John Williamson Ziegler, B.S.,	do.	636 *N. 35th-st.*

COURSE IN THE WHARTON SCHOOL.

James Burnet Crane, B.A.,	Philadelphia,	42*d & Spruce-st.*

UNDERGRADUATES.

SENIORS.

COURSE IN THE ARTS.

William Allen, Jr.,	Philadelphia,	820 *N. 41st-st.*
David Werner Amram,	do.	924 *New Market-st.*
William Sinclair Ashbrook,	do.	3614 *Baring-st.*
John Ashhurst, 3d,	do.	2000 *W. DeLancey Pl.*
Chauncey Ralston Baugh,	do.	329 *S. Broad-st.*
Edgar French Brown,	do.	3716 *Chestnut-st.*
Charles Tyler Cowperthwait,	Chestnut Hill,	
Edwards Sanford Dunn,	Philadelphia,	725 *Pine-st.*
George Harrison Frazier,	do.	250 *S. 18th-st.*
Fred. Wm. Wilson Graham,	do.	1528 *Spruce-st.*
John McArthur Harris,	Germantown,	5124 *Green-st.*
James Haworth,	West Philadelphia,	37 *Wyoming-st.*
Oliver Huckel,	Frankford,	*N. W. Cor. Penn & Allen*

Digitized by Google

Joseph Siegmund Levin,	Philadelphia,	1217 *Franklin-st.*
Walter Rodman Lincoln,	do.	1610 *Master-st.*
Walter Biddle Lowry,	do.	1517 *Carpenter-st.*
Christopher Magee, Jr.,	do.	1523 *Spruce-st.*
James Alan Montgomery,	West Chester, Pa.	
William Romaine Newbold,	Montclair, N. J.	
George Wharton Pepper,	Philadelphia,	1736 *Pine-st.*
Francis John Pryor, Jr.,	do.	1939 *South-st.*
Theodore Wood Reath,	do.	1538 *Pine-st.*
Alexander Wilson Russell, Jr.,	do.	434 *S. 42d-st.*
Robert Bowen Salter,	do.	2016 *Mt. Vernon-st.*
André William Séguin,	New Orleans, La.,	4815 *Chester Ave.*
Henry Daniel Emanuel Siebott,	do.	1723 *Ingersoll-st.*
James Somers Smith, Jr.,	do.	212 *S. 4th-st.*
Witmer Stone,	Germantown,	*Fisher's Lane*
George Flowers Stradling,	Hatboro, Pa.,	
Charles Cooper Townsend,	Overbrook, Pa.	

COURSE IN SCIENCE.

4. Henry Clay Adams,	Philadelphia.,	1921 *Green-st.*
3. Louis Eugene Amet,	do.	127 *N. 21st-st.*
4. Henry Price Ball,	do.	4533 *Frankford Ave.*
4. Charles Thos. Parry Brunner,	do.	1921 *Arch-st.*
1. Daniel Edwin Brunner, (A.B.)	Reading, Pa.,	101 *S. 34th-st.,*
4. Frederick Colton Clarke,	Philadelphia.	134 *N. 21st-st.*
4. Albert Rowland Cline,	do.	3718 *Haverford-st.*
2. Thomas Darling Drown,	Weldon, Pa.	
4. Edgar Pardee Earle,	Chestnut Hill.	
2. Joseph Sketchley Elverson,	Camden, N. J.,	437 *Stevens-st.*
2. Loudon Engle,	Philadelphia,	27 *Wyoming-st.*
1. Lee Käufer Frankel,	do.	1315 *Marshall-st.*
3. Silas Godfrey Griffith,	do.	1026 *W. Dauphin-st.*
4. William Hahman,	do.	*Harrowgate Lane*
3. George Bacon Hancock,	do.	3216 *Baring-st.*
4. Walter Eugene Harrington,	do.	2131 *N. 12th-st.*
4 William Hahman,	do.	*Harrowgate Lane.*
1. John Dawson Hawkins,	do.	2143 *Mt. Vernon-st.*
1. John Julius Hovey,	Beverly, N. J.	
2. Frank James Keeley,	Philadelphia,	3815 *Spruce-st.*
3. Edward Fulbister Kenney,	do.	4802 *Fairmount Ave.*
1. Jno. Philip Krecker,	do.	1014 *N. 2d-st.*
3. Theophilus Kuelling,	do.	625 *N. 36th-st.*
3. Thomas Love Latta,	do.	3717 *Hamilton-st.*
5. Charles Robert Lee,	Bryn Mawr, Pa.	
4. Leighton Lee,	Germantown,	*Manheim-st.*
3. William McLean,	Philadelphia,	2000 *Wallace-st.*
2. James Francis Magee, Jr.,	do.	114 *N. 17th-st.*
3. Albert Lee Magilton,	do.	713 *Florida-st.*
3. George Ledlie Martin,	do.	1316 *Catharine-st.*
1. Levis Passmore Newlin,	do.	1730 *Catharine-st.*
4. William Byrd Page,	do.	281 *S. 4th-st.*
4. David Pepper, Jr.,	do.	1827 *Spruce-st.*

Digitized by Google

3. Andrew Perry Redifer,	Philadelphia,	135 *Race-st.*
5. Howard Smith Richards,	do.	1512 *Otis-st.*
1. Robert N. Riddle,	do.	4722 *Green-st.*
4. Henry Hunter Seyfert,	do.	1735 *Park Ave.*
4. Franklin Sheble,	do.	1709 *Mt. Vernon-st.*
3. James Reeves Siddall,	do.	3817 *Fairmount Ave.*
4. Alfred Henry Smith,	do.	1416 *Bouvier-st.*
4. William Poultney Smith, Jr.,	Abington, Pa.	
2. Milton Valentine Snyder,	Philadelphia,	515 *N. 38th-st.*
3. Theodore Nelson Spencer,	do.	942 *Franklin-st.*
2. Daniel Morrell Stackhouse,	Wallingford, Pa.	
3. Horace Ambrose Stever, Jr.,	Philadelphia,	1718 *Cadwallader-st.*
3. Joseph Christian Wagner,	do.	1539 *N. 12th-st.*
3. John Wallace Weaver,	do.	1909 *N. 7th-st.*
4. Alan Dean Whittaker,	do.	*Chestnut Hill.*

COURSE IN PHILOSOPHY.

George Fetterolf,	Philadelphia,	*Girard College*
Robert Stephen Maison,	do.	6901 *Woodland Ave.*
Hyland Clarke Murphey,	Phœnixville, Pa.,	5139 *Master-st.*
Frank Remi Remont,	Philadelphia,	331 *S. 13th-st.*

COURSE IN THE WHARTON SCHOOL.

Forrest Murrell Anderson,	Philadelphia,	745 *S. 9th-st.*
William Francis Audenried,	do.	1823 *Walnut-st.*
Edward Charles Batchelor,	do.	886 *N. 6th-st.*
Charles Seligman Bernheimer,	do.	1804 *Franklin-st.*
Joseph Spencer Brock,	do.	2025 *Wallace-st.*
Francis Asbury Bruner,	do.	743 *N. 40th-st.*
Joseph Allison Eyster, Jr.,	do.	236 *W. Logan Sq.*
Clement Acton Griscom, Jr.,	do.	1018 *Spruce-st.*
Crawford Dawes Hening,	do.	330 *S. 21st-st.*
Samuel Frederic Houston,	do.	*Chestnut Hill.*
Hew Brydon MacLean,	do.	277 *S. 4th-st.*
Frank Wenrich Sheafer,	do.	3900 *Walnut-st.*
Henry Naglee Smaltz,	do.	801 *N. 6th-st.*
Miles Tucker,	do.	1213 *Locust-st.*
Edward Lowber Welsh,	do.	1420 *Spruce-st.*

JUNIORS.

COURSE IN THE ARTS.

William Lyttleton Barclay,	Philadelphia,	1816 *Pine-st.*
Richard Henry Bayard Bowie,	do.	1710 *Walnut-st.*
Robert Tillson Brinton,	Media, Pa.	
John Willits Campion,	Philadelphia,	404 *Franklin-st.*
Walter Budd Keen,	do.	3913 *Chestnut-st.*
Theodore William Kretschmann,	Germantown,	5880 *Main-st.*
James Barton Longacre,	Philadelphia,	1337 *Spruce-st.*
William Wilson Longstreth,	do.	2013 *Chestnut-st.*
Ernest de Fremery Miel,	do.	515 *S. 41st-st.*
Samuel Geo. Morton Montgomery,	West Chester, Pa.,	*Ardrossan.*

Digitized by Google

William Salter Porter,	Media, Pa.	
James Martin Raker,	Philadelphia,	2937 *Richmond-st.*
Horace Clark Richards,	do.	4812 *Fairmount Ave.*
John Duncan Ernest Spaeth,	do.	1615 *Girard Ave.*
Carrow Thibault,	do.	325 *S. 16th-st.*
Carleton Bicknel Zeilin,	Germantown,	*Tulpehocken-st.*

COURSE IN SCIENCE.

3. Eugene Delano Cleaver,	Berwyn, Pa.	
3. George Brodhead Harris,	Germantown,	*School Lane.*
3. Manton Eckfeldt Hibbs,	Philadelphia,	527 *N. 18th-st.*
1. Oliver Hough,	do.	325 *S. 16th-st.*
3. Frederick Mervin Ives,	Rome, Italy,	3709 *Woodland Ave.*
3. Edgar Francis Jordan,	Philadelphia,	4226 *Walnut-st.*
1. Herbert Moses Kaufmann,	do.	1325 *Franklin-st.*
4. Edwin Robert Keller,	do.	257 *N. 6th-st.*
4. Charles Everett Ross,	Chester, Pa.,	347 *Kerlin-st.*
1. John Richard Savage, Jr.,	Frankford,	*W. Orthodox-st.*
3. William James Smith,	Philadelphia,	868 *Preston-st.*
4. Isaac Starr, Jr.,	do.	2203 *Trinity Place.*
3. William Caner Wiedersheim,	do.	315 *S. 17th-st.*
4. Edward Hand Williamson, Jr.,	do.	3321 *Walnut-st.*
5. Maurice Davidson Wilt,	do.	1417 *N. 15th-st.*

COURSE IN PHILOSOPHY.

Lawrence Savery Smith,	Philadelphia,	1419 *Walnut-st.*

COURSE IN THE WHARTON SCHOOL.

George Clay Bowker,	Manayunk,	4365 *Main-st.*
Benjamin Wilfrid Fleisher,	Philadelphia,	2131 *Green-st.*
Franklin Derstine Hartzell,	Sellersville, Pa.	
Adam Keith Luke,	Rockland, Del.	
Lightner Witmer,	Philadelphia,	1734 *Park Ave.*

SOPHOMORES.

COURSE IN THE ARTS.

William Clarence Arrison,	Frankford,	33 *E. Orthodox-st.*
William Wayne Ashhurst,	Philadelphia,	*20th & De Lancey Pl.*
Frederic Robeson Baker,	do.	1414 *Arch-st.*
William Alexander Bell,	New York City,	717 *S. 10th-st.*
Charles Newton Clement Brown,	Philadelphia,	2119 *Mt. Vernon-st.*
Leon Symonety Dexter,	do.	437 *N. 32d-st.*
Conway Dillingham,	West Chester, Pa.	
Sherborne William Dougherty,	Philadelphia,	1435 *Girard Ave.*
William Innes Forbes,	do.	1409 *Locust-st.*
Charles Harrison Frazier,	do.	101 *S. Front-st.*
Dallett Fuguet,	Bryn Mawr, Pa.	
John White Geary,	Philadelphia,	1509 *Walnut-st.*
Samuel Moore Hepburn,	Carlisle, Pa.,	2213 *Walnut-st.*

Digitized by Google

Robert Carmer Hill,	Philadelphia,	129 *N. 18th-st.*
Edwin Isaac Hyneman,	do.	1015 *Green-st.*
Charles King Lennig,	Andalusia, Pa.	
Dickinson Sergeant Miller,	Philadelphia,	1309 *Pine-st.*
James Clayton Mitchell,	do.	1716 *N. 16th-st.*
Rufus Palen,	Germantown,	44 *Harvey-st.*
Charles Peabody,	do.	*Wayne & Walnut Lane.*
Elliston Joseph Perot,	Philadelphia,	5103 *Germant'n Ave.*
David Bowen Salter,	do.	2016 *Mt. Vernon-st.*
Lloyd Mifflin Scott,	Howelville, Pa.	
Walter Scott,	Philadelphia,	3808 *Chestnut-st.*
Franklin Nelson Strader,	do.	*Wissahickon.*
Edmund Carter Taylor,	do.	2129 *Pine-st.*
William Macpherson Wiltbank,	do.	1813 *De Lancey Place.*
William Moodie Yeomans,	do.	1948 *N. Broad-st.*

COURSE IN SCIENCE.

Franklin Bache,	Philadelphia,	*Cor. 40th & Pine-sts.*
Timothy Raymond Beyer,	Germantown,	4835 *Green-st.*
Herbert Hart Boyd,	Philadelphia,	2223 *Spruce-st.*
George Brooke, Jr.,	Birdsboro, Pa.	
Oscar Pearl Chamberlain,	Philadelphia,	3923 *Aspen-st.*
Howard Crawley,	Haddonfield, N. J.	
Francis Macomb Cresson,	Oaks, Pa.	
Christian Frederic Fisher,	Philadelphia,	515 *Green-st.*
Thomas Willis Fleming,	do.	2105 *Tioga-st.*
William Edwin Gaunt, Jr.,	Paulsboro, N. J.	
William Guggenheim,	Philadelphia,	1420 *N. 16th-st.*
George Henderson,	do.	1221 *Arch-st.*
George Hammeken Hill,	do.	231 *S. 42d-st.*
Thomas Wilkins Hulme,	Mount Holly, N. J.	
Charles P. B. Jefferys, Jr.,	Philadelphia,	3928 *Walnut-st.*
Charles Barton Keen,	do.	3913 *Chestnut-st.*
Rudolph Howard Klauder,	do.	2208 *Venango-st.*
Edward Christman Knight,	Germantown,	*Clapier-st.*
Samuel McCune Lindsay,	Philadelphia,	3912 *Chestnut-st.*
William McClellan Menah,	do.	1517 *South-st.*
August Appleton Miller,	do.	623 *N. 13th-st.*
Edward Warloch Mumford,	do.	1401 *N. 17th-st.*
Geo. Whitfield Taylor Miller,	Germantown,	5122 *Green-st.*
Ellis Paxson Oberholtzer,	Norristown, Pa.	
David Pacheco,	Brazil,	1310 *Walnut-st.*
William Albert Paris,	Philadelphia,	1907 *Green-st.*
Edward Asa Partridge,	do.	1738 *Sydenham-st.*
Walter Phillips,	do.	450 *Marshall-st.*
Alfred Newlin Seal,	do.	1418 *Bouvier-st.*
Daniel Bussier Shumway,	do.	1740 *Green-st.*
Albert Haseltine Smith,	Abington, Pa,	
Robert Stulb,	Philadelphia,	506 *N. 4th-st.*
Archibald Grahm Thomson,	do.	1426 *Walnut-st.*
Nathan Young Worrall,	do.	2005 *Mt. Vernon-st.*
Archibald Wright,	do.	1804 *Race-st.*

Digitized by Google

COURSE IN PHILOSOPHY.

George Dana Boardman Darby,	Philadelphia,	4000 *Chestnut-st.*

FRESHMEN.

COURSE IN THE ARTS.

Benjamin Curtis Allen,	Philadelphia,	3319 *Walnut-st.*
John Antrobus,	do.	2512 *Hagert-st.*
Lewis Audenried,	do.	1823 *Walnut-st.*
John Barker,	do.	4300 *Spruce-st.*
William Wilson Barr, Jr.,	do.	1425 *Christian-st.*
John Hill Brinton,	do.	1423 *Spruce-st.*
Herbert Charles Brown,	do.	3327 *Catharine-st.*
William Herbert Burk,	Clarksboro, N. J.	
Robert Bealle Burke,	Philadelphia,	3601 *Walnut-st.*
Joseph Warren Coulston, Jr.,	do.	1908 *Spring Garden-st.*
Trevanion Borda Dallas,	do.	265 *S. 4th-st.*
George Herbert Dennison,	Roxborough, Pa.	
James Whalley Diggles,	Philadelphia,	1416 *N. 11th-st.*
Robert Isaac Gamon,	do.	1629 *Christian-st.*
Henry Riley Gummey, Jr.,	Germantown,	*E. Walnut Lane.*
Henry Lincoln Haines,	Burlington, N. J.	
William Guy Bryan Harland,	Germantown,	4626 *Main-st.*
Tatlow Jackson, Jr.,	Philadelphia,	520 *Walnut-st.*
Henry Leopold Jefferys,	do.	3928 *Walnut-st.*
Henry Ashton Little,	Wallingford, Pa.	
William Henry Lloyd, Jr.,	Philadelphia,	4309 *Spruce-st.*
James Hartley Merrick,	Roxborough, Pa.	
Joseph Mac Gregor Mitcheson,	Philadelphia,	1608 *Locust-st.*
Frederick Brooke Neilson,	do.	325 *S. 12th-st.*
William Rufus Nicholson, Jr.,	do.	2106 *Chestnut-st.*
Hugh Walker Ogden,	Portland, Me.	
William Hahn Patterson,	Philadelphia,	1633 *Locust-st.*
Josiah Harmar Penniman,	do.	2316 *St. Alban's Place.*
Robert McClellan Ramsey,	do.	1717 *Carpenter-st.*
George David Rosengarten, Jr.,	do.	325 *S. 17th-st.*
John Gilbert Stoddart,	do.	107 *S. 21st-st.*
William Henry Stubblebine,	do.	1935 *Turner-st.*
Howard Hungerford Sypher,	do.	4025 *Walnut-st.*
William Henry Trotter, Jr.,	do.	1303 *Spruce-st.*
Robert Reineck Truitt,	do.	3505 *Baring-st.*
Horace Andrews Walton,	Roxborough, Pa.	

COURSE IN SCIENCE.

William Batchelor,	Philadelphia,	886 *N. 6th-st.*
John Joseph Borie,	Chestnut Hill, Pa.	
Charles Shimer Boyer,	Camden, N. J.,	528 *Linden-st.*
Evaristo Andrew Calves,	Philadelphia,	1814 *Park Ave.*
Henry Yale Dolan,	do.	1809 *N. Broad-st.*
Maurice Mayer Feustmann,	do.	1512 *Girard-Ave.*
Edwin Stanton Field,	do.	36*th & Powelton Ave.*

Digitized by Google

Hermann Fleck,	Germantown,	108 *Rittenhouse-st.*
Frank Richards Ford,	Philadelphia,	1823 *Vine-st.*
Jay Gates,	Germantown,	4633 *Main-st.*
William Goodwin,	Chestnut Hill, Pa.	
Henry Warren Kilburn Hale,	Philadelphia,	636 *Race-st.*
Atherton Holman Harlan,	do.	1515 *Walnut-st.*
William Howard Hart,	Ambler, Pa.,	1317 *Walnut-st.*
Philip Eugene Howard,	Philadelphia,	3429 *Walnut-st.*
James Clark Irwin,	Cheyney, Pa.	
Manzo Kushida,	Tokio, Japan,	3346 *Walnut-st.*
Benjamin Brentnall Lathbury,	Philadelphia,	2112 *Uber-st.*
Arthur McGeorge,	Merion, Pa.	
Nelson Baum Mayer,	Philadelphia,	945 *N. 8th-st.*
Joseph Henry Patterson,	Chesnut Hill, Pa.	
Edmund Baker Paul,	Philadelphia,	1814 *Christian-st.*
Tom MacKellar Royal,	Germantown, Pa.,	*Coulter & Hancock-sts.*
Newton Webster Samuel,	Philadelphia,	2144 *Park Ave.*
Adolph William Schramm,	Camden, N. J.	
John Franklin Stevens,	Philadelphia,	1127 *Mt. Vernon-st.*
Richard Saunders Stoyle,	do.	2217 *Vine-st.*
Joseph Fithian Tatem,	Haddonfield, N. J.	
William Henry Warrich,	Philadelphia,	250 *S. 12th-st.*
Albert Joseph Zeleni,	do.	223 *Washington Ave.*

COURSE IN PHILOSOPHY.

Benjamin Lease Crozer Griffith,	Upland, Pa.	

THE COURSE IN MUSIC.

Second Year.

Margaret G. Devine,	Park Station.	
Elizabeth A. Reinboth,	East Park,	Woodford
Emma A. Whiteley,	Philadelphia,	716 *N. 44th-st.*
Evor Williams,	Coaldale, Pa.	
Sara Wilson,	Philadelphia,	674 *N. 39th-st.*

First Year.

Ella Ellis		
M. Elizabeth Ferguson,	Philadelphia,	5200 *Lancaster Ave.*
Edward S. Field,	do.	3502 *Hamilton Ave.*
Anna Jackson,	Oberbrook, Pa.	
Anne F. Pond,	Philadelphia,	2513 *Brown-st.*
Lily J. Richards,	do.	131 *N. 63d-st.*
Hedwig M. Schmitz,	do.	3104 *Baring-st.*
May B. Snowden,	do.	1812 *Spruce-st.*
J. Struthers,	do.	2112 *Spruce-st.*
Katharine Thunder,	do.	1832 *Wylie-st.*

Digitized by Google

SPECIAL STUDENTS.

Towne Scientific School.

3. Thomas S. R. Flickwir,	Philadelphia,	226 *German-st.*
1. Louis Joseph Mátos,	do.	3943 *Fairmount Ave.*
1. Daniel Byrne,	do.	1336 *N. 11th-st.*
1. Frank Herron Carothers,	do.	3434 *Sansom-st.*
3. Charles Condit Clifford,	do.	*Frankford Arsenal.*
5. Crawford Coates,	do.	4302 *Spruce-st.*
1. Paul Farnum,	Media, Pa.	
1. Emlen Trenchard Hall,	Philadelphia,	1623 *Spruce-st.*
3. William Warner Hill,	do.	1537 *N. 8th-st.*
1. John William Thomas,	do.	2300 *Master-st.*
4. Rudolph Bœricke,	do.	1624 *Wallace-st.*
1. Walter Nadal Boyer,	do.	1829 *N. Broad-st.*
1. Samuel Francis DuPont,	do.	3600 *Chestnut-st.*
1. William Warren Funk,	Broad Axe, Pa.	
3. Charles Samuel Gawthrop,	Wilmington, Del.	
1. William Barklie Henry,	Philadelphia,	2200 *St. James' Pl.*
3. William George Houston,	do.	814 *N. 21st-st.*
3. George Washington Hyde, Jr.,	do.	*Lemon Hill.*
4. Chas. Edw. Holland Johnston,	do.	3720 *Hamilton-st.*
1. Maurice Joy, Jr.,	do.	722 *N. 40th-st.*
1. Henry Martin Justi,	do.	3401 *Baring-st.*
3. Robert Samuel McCleister,	Germantown,	2218 *Pine-st.*
1. Francis William Ralston, Jr.,	Philadelphia,	233 *S. 13th-st.*
1. Albert Sauveur,	do.	3800 *Locust-st.*
3. Alfred Varley Sims,	do.	3709 *Woodland Ave.*
1. Walter Raigtuel Stroud,	do.	2035 *Mt. Vernon-st.*
1. Charles Tindel,	Frankford,	236 *E. Orthodox-st.*

Wharton School of Finance and Economy.

Norton Buel Young,	Philadelphia,	*Chestnut Hill.*
Frederick Black,	Black's Island, Pa.	
Samuel Kahn Loucheim,	Philadelphia,	711 *N. 6th-st.*
David Emanuel Simon,	do.	826 *N. 5th-st.*
Edward Bright Tustin,	do.	3310 *Walnut-st.*
Charles Sturgis Wood.	do.	*Continental Hotel.*

PARTIAL STUDENTS.

Department of Arts.

Edward Alden Miller,	Philadelphia,	1309 *Pine-st.*
Frazer Ashhurst,	do.	1830 *Spruce-st.*
Stuart Douglas Lansing,	Burlington, N. J.	
John David Samuel,	Philadelphia,	1809 *Pine-st.*

Digitized by Google

Matthew James Hyndman,	Philadelphia,	1529 *N. 22d-st.*
James Hall Oliver,	do.	1031 *Arch-st.*

TOWNE SCIENTIFIC SCHOOL.

3. James Clarence Ogden,	Clifton Heights, Pa.	
4. John Sims Forbes,	Philadelphia,	1409 *Locust-st.*
5. William Davenport Goforth,	Chelten Hills, Pa.	
3. William Kenney Barclay,	Philadelphia,	4044 *Chestnut-st.*
1. William Bray Boyd,	Waverley Heights.	
5. J. Vaughan Drown,	Weldon, Pa.	
1. Jerome T. Elwell,	Philadelphia,	*Institute for the Blind.*
3. Joseph Hildeburn Gumbes,	Germantown.	
4. William Vincent McGrath,	Philadelphia,	1810 *Spring Garden-st.*
Tamio Hayashi,	Tokio, Japan.	
Selden Lord Walkley,	Philadelphia,	1823 *Green-st.*

WHARTON SCHOOL OF FINANCE AND ECONOMY.

William Burton Pratt,	Milford, Del.	
William Townsend Wright,	Philadelphia,	3818 *Chestnut-st.*
George Grierson Divine,	do.	*53d and Berks-st.*
George Stuart Patterson,	do.	*Chestnut Hill.*
Elijah Hollingsworth Siter,	do.	1528 *Chestnut-st.*

UNDERGRADUATE COURSE IN PHILOSOPHY.

Julian Hiland Dewey,	Philadelphia,	1537 *Centennial Ave.*
John Alexander McIlwain,	do.	2044 *N. 7th-st.*
Howard Mellor,	do.	460 *Marshall-st.*

SUMMARY OF COLLEGE DEPARTMENT.

	Arts.	Science.	Philosophy.	Finance.	Music.	Totals
Post-Seniors,	—	22	—	1	—	23
Seniors,	30	48	4	15	5	102
Juniors,	16	15	1	5	10	47
Sophomores,	28	35	1	—	—	64
Freshmen,	36	30	1	—	—	67
Special Students,	—	27	—	6	—	33
Partial Students,	6	21	3	5	—	25
Totals,	116	198	10	32	15	361

Digitized by Google

The respective Faculties, composing the College Faculty, conduct the following Courses of study: the Course in Arts, the Courses in the Towne Scientific School, the Course in the Wharton School, a Course in Philosophy for Undergraduates, and the Course in Music.

These courses permit a student to take, in the Freshman and Sophomore years, either the classical or the modern languages, with English, History, Mathematics, etc., and to elect at the close of the Sophomore Year, between the further Courses in Arts, Philosophy, and Finance and Economy. Students who wish to take any one of the five Technical Courses in the Towne Scientific School, must have taken the Scientific Course (pp. 41, 42) in the Freshman and Sophomore Years.

The Degree of *Bachelor of Arts* (*A.B.*) is given on graduation not only to students in the Department of Arts, but also to those students in the Wharton School and in The Course of Philosophy for Undergraduates who have passed the first two years of the Department of Arts.

The Degree of *Bachelor of Science* (*B.S.*) is given to students in the Towne Scientific School at the end of the Senior Year; and the technical degree of Mining Engineer, Civil Engineer, Mechanical Engineer, Practical Chemist and Architect, at the end of the Post-Senior Year. Alumni of the Towne Scientific School who hold a Bachelor's degree may receive the technical degree corresponding to the Special Course, on completing satisfactorily at any time the studies of the Post Senior Year.

The Degree of *Bachelor of Philosophy* (*Ph.B.*) is given on graduation to students who have pursued the full Course of the Wharton School, and also to those who, graduating in this School, have passed the Freshman and Sophomore Years in the Towne Scientific School.

PUBLIC LECTURES.

The following courses of Lectures given in this Department are open to the public:—

On German Literature, by Professor SEIDENSTICKER.

On the Older English Classics, by Professor MCELROY.*

On Social Science, by Professor THOMPSON.

On Physics and Astronomical Physics, by Professor BARKER.

On Inorganic and Organic Chemistry, by Professor SADTLER.

On Goethe and his Works, by Professor JAMES.

On the "Application of the Principles of Art to every-day Life," by HENRY BLACKBURN, of London.

On "Roman Archæology," by Professor LANCIANI, of Rome.

On the "Ancient Civilization of Babylon," by the Rev. Professor PETERS.

* This course consists chiefly of Readings, with critical commentary.

Google

On "Assyrian Literature in its bearings on the Old Testament," by Dr. MORRIS JASTROW, JR.

On "Egypt and the Bible," by the Rev. Professor HILPRECHT.

On "American Archæology," by Professor BRINTON.

Instruction in Analytical Chemistry, including practical work in the laboratory, under Professor GENTH.

The fee for each course is five dollars; for the instruction in Analytical Chemistry, two hundred dollars a year.

Application for admission or for further information respecting lectures or instruction may be made to the Dean, or to the Secretary, of any of the Faculties.

FEES.

For College Fees, Expenses, Boarding, etc., see page 160.

SCHOLARSHIPS.

I. THE PENN SCHOLARSHIPS, two in number, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege reserved by Thomas Penn, Proprietary of Pennsylvania.

II. Certain Free Scholarships (about five in each class) are granted to deserving and needy students in this Department, under the following regulations:

Each candidate must present written testimonials, as to their deserts and needs, to the Dean of the Faculty, at or before the entrance-examinations in June or September. He must pass these examinations, or, in case he is already in the classes, the annual examinations; and is then recommended for admission to the committee of the Board of Trustees. The scholarships are granted for one year only.

III. THE PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under a contract with the City of Philadelphia, Fifty Free Scholarships have been permanently established in the College Department of the University for the benefit of pupils from the Public Schools of the city. The candidates for these scholarships are sent by the Board of Public Education to the examinations for admission in June. They are examined at the same hours and on the same subjects as other candidates, but not necessarily on the same papers. The scholarships, according to the number of vacancies, are bestowed upon those who reach the highest grade in their examination, provided that grade be at least sixty-five per cent.

Of these, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, and the SAMUEL V. MERRICK SCHOLARSHIP have been endowed.

IV. The object of the income of the BLOOMFIELD MOORE FUND is to

Digitized by Google

enable women (not exceeding six in any year) who are teaching, or who propose to teach, to receive free instruction in all departments to which women are admitted.

ANNUAL EXAMINATIONS

For promotion are held in January and June; for degrees, in May. At the end of each term, students who attain a certain standing are classed as "Distinguished." Students whose term-averages show them to be deficient in any of their studies, are conditionally attached to their class, until the deficiency has been fully made up. For persistent neglect of study, great irregularity of attendance, or inability to keep up with the class, students are dropped from the rolls.

PRIZES FOR THIS YEAR.

I. THE FACULTY PRIZES:

1. A Prize of twenty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Junior Class. Subject: *The Platonic Ideas.*

2. A Prize of twenty dollars for the best examination on the *Oration of Æschines against Ctesiphon* by the members of the Junior Class.

3. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents. The examination will be on *Arnold's Greek Prose Composition,* from the Relative to the end of the book.

4. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the Voluntary Junior Class.

5. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Irish Union of* 1801.

6. A prize of twenty dollars for the best Essay by a member of the Junior Class. Subject: *The 'In Memoriam' of Alfred Tennyson.*

7. A prize of fifteen dollars for the best Declamation by a member of the Sophomore Class.

8. A first prize of fifteen dollars, and a second prize of ten dollars, for the best special examinations in the Elements of Latin Prose Composition, by Freshmen on entering College. The examinations must reach a satisfactory standard of excellence. In 1886, they will be upon the first fifty-five exercises in *Arnold's Latin Prose Composition.* Certificates will be presented to *all* competitors whose examinations reach a satisfactory standard.

9. Two prizes of the same value as those offered for Latin Prose Composition for the best special examinations in Greek Prose Compositon by

Digitized by Google

Freshmen on entering College. In 1886, the examinations will be on *Jones's Greek Exercises*, with the Accents.

10. A prize of twenty dollars to a member of the Scientific Classes for improvement in Drawing, and general good conduct and application.

II. THE HENRY REED PRIZE, founded by the Alumni of the University, for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a Diploma of Merit. The Essay must be handed to the Dean before the first day of May. Subject: *The Love of Nature as an Element in Poetry, considered especially in regard to the English Literature of the Eighteenth Century.* Professor REED on this subject says: 'No great poet, perhaps I may say no great writer is without the deep sense of the beauty and glory of the universe, the earth that is trod on, the heavens that are gazed at. * * * If it can be shown, as it undoubtedly can, that thoughtful genial communion with Nature is an accompaniment of all poetry of the highest order, in all ages, surely we may infer that a literary era which is deficient in this element is the era of a lower literature.'—*Reed's English Literature*, p. 217. See *Introduction to Wordsworth's Lyrical Ballads;* Reed's *English Literature;* Harrison's *Choice of Books and other Essays* (*A Plea for the Eighteenth Century*); Perry's *English Literature of the Eighteenth Century;* Taine's *English Literature;* Wilson's *Recreations of Christopher North.* (See *passim* for criticism of the poetry of the Eighteenth Century and that of the early part of the Nineteenth.)

III. THE SOCIETY OF THE ALUMNI PRIZES:—

1. A prize for the best Latin Essay, by a member of the graduating class. It entitles the successful competitor to one year's interest on nine hundred dollars. The essays must be handed to the Dean by the first day of May, for transmission to a Committee of Examiners appointed by the Society.

2. A prize for the best Original Declamation by a member of the Junior Class. It entitles the successful competitor to one year's interest on three hundred dollars.

IV. A prize, founded by HENRY LA BARRE JAYNE, of the Class of 1879, for the best English Composition by a member of the Freshman Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *Hugh Swinton Legaré.*

V. THE JOSEPH WARNER YARDLEY PRIZE, founded by the class of 1877, in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars, and to an accompanying Diploma of Merit. Subject: *Profit-Sharing as a Solution of the Labor Problem.*

Digitized by Google

VI. A prize founded by D. VAN NOSTRAND, Esq., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship. It consists of certain technical works.

SOCIETIES.

The PHILOMATHEAN (Literary) SOCIETY, founded in 1813, holds meetings weekly during the college year, in its rooms at the University. All undergraduates of the College Department are eligible to membership. The order of exercises includes orations, essays, and a debate, besides the usual general business, which affords excellent practice in the principles of parliamentary law. A large and valuable library is owned by the Society.

The SCIENTIFIC SOCIETY holds weekly meetings at its rooms in the University throughout the college year. All undergraduates of the University are eligible to membership. Scientific essays are read, discussions are held, with a general comparison of observations and experiments. Besides a considerable scientific library, large collections of minerals, fossils, ornithological specimens, and other objects of scientific interest are owned by the Society. A course of lectures, under the management of the Society, is delivered annually.

ACADEMY OF NATURAL SCIENCES.

Through the courtesy of the Curators of the Academy of Natural Sciences (S. W. Corner of 19th and Race sts.), students of the University are admitted free of charge to its very extensive museum on exhibition of a card which can be obtained from the Secretary of the Trustees; and permission to use the Museum for special study, or to consult the library of 30,000 volumes on Natural History can be obtained by application to the Curators.

THE COURSE IN ARTS.

ENTRANCE EXAMINATION.

For the FRESHMAN CLASS, candidates are examined in—

GREEK.—Greek Grammar. Arnold's *Greek Prose Composition* (*to the end of Exercise* 24). Xenophon (*Four Books of the Anabasis.*) Homer (*First three Books of the Iliad*).

LATIN—Latin Grammar. Cæsar (*Three Books of the Gallic War*). Virgil (*Six Books of the Æneid*). Cicero (*Five Orations*). Arnold's *Latin Prose Composition* (*to the end of Exercise* 20).

ENGLISH—Grammar. (Abbott's *How to Parse*, Whitney's *Essentials of English Grammar*, Murray's *Advanced Lessons in English Composition, Analysis, and Grammar* indicate the amount required.) Composition. Abbott's *How to Write Clearly* (first sixty-three pages). An essay on a

Digitized by Google

subject to be taken from the last-named of the following books, all of which must have been read by each candidate, viz: Froude's *Essay on Education* (*Short Studies*, 2d Series); Scott's *Marmion;* Alexander Smith's *On the Writing of Essays*, and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210; and Kingsley's *Hereward, The Last of the English.*

The subject of composition in 1888 will be taken from the last-named of the following works, all of which must have been read by each candidate, viz.: Alexander Smith's *On the Writing of Essays* and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210); Kingsley's *Hereward, The Last of the English;* Shakespeare's *As You Like it;* and Scott's *Rob Roy.*

GEOGRAPHY.—Ancient and Modern Geography. (Mitchell's *New Ancient Geography* and *Ancient Atlas* are recommended.)

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Higginson, Scudder, or Johnston is suggested.)

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane Geometry.

FOR ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes.

The examinations are held in June and September. Circulars stating the days and the subjects of examination for each day can be had, after April 1st, on application to Mr. J. B. WEBSTER, Clerk to the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

GREEK.—Xenophon's *Hellenics.* Æschylus. Arnold's Greek Prose Composition, completed.

LATIN.—Selections from Livy, and Horace's Satires.

ENGLISH.—Lectures on Prose Composition, with Illustrative Readings from English prose authors, and Compositions on Themes selected from these Readings. Rhetoric (McElroy's *Structure of English Prose*, Part First.)

HISTORY.—Freeman's *General Sketch of History.*

MATHEMATICS.—Wentworth's *Algebra*, Chauvenet's *Geometry.* Wentworth's *Trigonometry.*

SOPHOMORE CLASS.

GREEK.—Thucydides (*Sicilian Expedition*). Euripides or Aristophanes. Greek Composition.

LATIN.—Tacitus (*Agricola, Germania*, or *Annals*). Cicero (*De Senectute* or *De Officiis*). Horace (*Selected Odes*).

ENGLISH.—Rhetoric completed. Lounsbury's *English Language.* Six Compositions. Two Declamations.

Digitized by Google

MATHEMATICS.—Bowser's *Analytical Geometry.* Elementary, Differential and Integral Calculus.

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic and Organic Chemistry (*Experimental Lectures, with Examinations*).

GERMAN.—(During the Second Term) Whitney's *Grammar.* Grimm's *Märchen.*

JUNIOR CLASS.

REQUIRED,—

LOGIC.—Jevons's *Lessons in Logic;* Ethics, Whewell's *Elements;* Murray's *Outlines of Hamilton's Philosophy;* Lectures.

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.*)

ENGLISH.—Six Compositions. Two Declamations.

HISTORY.—History of English Literature.

ELECTIVE,*—

GREEK.—Sophocles. Lysias or Isocrates. Theocritus or Pindar.

LATIN.—Selections from Juvenal. Cicero (*De Officiis, De Finibus,* or *De Amicitia*). Horace (*Epistles*). Reading at Sight.

PURE MATHEMATICS.—Differential Calculus. Lectures on Higher Algebra.

GERMAN.—Schiller's *Wilhelm Tell.* Lessing's *Minna von Barnhelm.* Grammar and Exercises continued.

FRENCH.—Corneille and Racine.

HISTORY.—Johnston's *American Politics* (with a critical study of Pamphlets and Political Documents).

OPTIONAL,—

ENGLISH.—Critical Study of English Prose Authors, with Special Reference to Composition *two hours a week.*

SENIOR CLASS.

REQUIRED,—

PHILOSOPHY.—Berkeley's *Principles, annotated.* Studies in the History of Philosophy. Butler's *Analogy.* Lectures.

HISTORY.—Lectures on the Philosophy of History, and on Modern History since 1789.

ENGLISH.—Five compositions. Two Declamations.

SOCIAL SCIENCE.—International Law (*Lectures*). Thompson's *Elements of Political Economy.*

ELECTIVE,—

ASTRONOMY.—Newcomb's Astronomy.

GREEK.—Demosthenes *de Coronâ.* Plato (*Apology* and *Crito,* or *Phædo*).

LATIN.—Cicero (*Tusculanæ*), or Lucretius (*Selections*). Horace (*Ars Poetica*). Reading at Sight.

* In the Junior and Senior years, Greek is elective with German; Latin with French; and Pure Mathematics with History and English.

Digitized by Google

ENGLISH.—Chaucer's *Canterbury Tales* (*Selections*). Spenser's Minor Poems. Shakespeare (*Three Plays*).

GERMAN.—Goethe's *Iphigenie*, in connection with the *Iphigenia* of Euripides. Goethe's *Faust*. History of the German Language.

FRENCH.—Boileau. Molière. Pascal. Brachet's *Historical Grammar*. History of French Literature and the Language.

PURE MATHEMATICS.—Integral Calculus.

HEBREW.—Harper's Manual, and Method. Harper's Elements.

PHYSICS.

OPTIONAL,—

ENGLISH.—English Poets from Chaucer to Tennyson. (Selected Readings to illustrate the Development of the Language) *two hours a week*.

PARTIAL COURSES.

A student may take any portion of the above Courses that the Faculty may sanction; but admission to a *Partial Course* is to be considered an exceptional arrangement, and may be withdrawn when deemed expedient. A Certificate, stating what studies have been pursued, will be awarded to those who complete such a Course satisfactorily.

For further information address Prof. E. O. KENDALL, LL.D., Dean of the Faculty.

DEGREES.

The degree of Master of Arts is conferred on Alumni of the University, Bachelors of Arts of at least three years' standing, who have pursued liberal studies since their graduation, and who present a satisfactory Thesis to the Faculty. This Thesis must be sent to the Dean by the first Friday in April.

THE COURSES

IN THE

TOWNE SCIENTIFIC SCHOOL.

The object of this School (named from its largest benefactor, John Henry Towne) is to give a thorough scientific education with technical training.

The studies of the Freshman and Sophomore years are nearly identical with those of the Department of Arts, except that for Latin and Greek are substituted French, and German, and additional Mathematics

The Technical Courses of Instruction cover three years, termed Junior Senior, and Post-Senior; of these, the last is in the main practical.

The Courses are:—

I. CHEMISTRY AND MINERALOGY.

II. METALLURGY AND MINING.

Digitized by Google

III. CIVIL ENGINEERING.

IV. DYNAMICAL ENGINEERING.

V. MECHANICAL DRAWING AND ARCHITECTURE.

Duly authenticated graduates of other Colleges are admitted without examination to any of the Technical Courses of the Towne School, upon giving evidence that their studies have been such as to fit them to pursue the particular course for which they apply. Candidates, not graduates of other Colleges, must pass a satisfactory examination in the studies of the previous years.

ENTRANCE EXAMINATIONS.

For the FRESHMAN CLASS candidates are examined in the following subjects:—

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane and Solid Geometry.

LATIN (elective with either French or German).—Cæsar, *Commentaries*, 3 *books;* Virgil, *Æneid*, 3 books; Latin Prose Composition.

ENGLISH.—Grammar. (Abbott's *How to Parse*, Whitney's *Essentials of English Grammar*, or Murray's *Advanced Lessons in English Composition, Analysis, and Grammar* indicate the amount required.) Etymology (McElroy's *Essential Lessons in English Etymology* shows the ground that will be covered by this Examination). Composition. Abbott's *How to Write Clearly* (first sixty-three pages). An essay on a subject to be taken from the last-named of the following books, all of which must have been read by each candidate, viz.: Froude's *Essay on Education* (*Short Studies*, 2d Series); Scott's *Marmion*; Alexander Smith's *On the Writing of Essays*, and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210); and Kingsley's *Hereward, The Last of the English.*

The subject of composition in 1888 will be taken from the last-named of the following works, all of which must have been read by each candidate, viz.: Alexander Smith's *On the Writing of Essays* and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210), and Kingsley's *Hereward, the Last of the English.* Shakespeare's *As You Like It;* and Scott's *Rob Roy.*

FRENCH.—Harrison's *French Syntax* (first forty-five *Practical Exercises*) and *Télémaque* (*Three Books*).

GERMAN.—Ahn's *Method, Fisher's edition* (*First Course, pp.* 1–100 *and* 135–140; *Second Course, pp.* 1–64).

GEOGRAPHY.—Modern Geography.

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Higginson, Scudder or Johnston is suggested.)

COURSE OF STUDY.

FRESHMAN YEAR.

MATHEMATICS.—Wentworth's *Algebra.* Chauvenet's *Plane and Spherical Trigonometry.* Bowser's *Analytical Geometry* begun.

Digitized by Google

DRAWING.—Geometrical and Isometrical Drawing (Minifie), and Drawing from the Flat. Free Hand Sketching. Use of the Scale and Protractor. Shading in India Ink. Graphical representations from Geometry.

HISTORY.—Myers' *Mediæval and Modern History.*

ENGLISH.—Lectures on Prose Composition with Illustrative Readings from English Prose authors, and Compositions on Themes selected from these Readings. Rhetoric (McElroy's *Structure of English Prose.* Part First).

GERMAN.—Review of Grammar. Whitney's *German Reader.* Hodges's *Course of Scientific German.*

FRENCH.—Harrison's French Syntax, Modern French Prose. Bôcher's *French Plays.*

SOPHOMORE YEAR.

MATHEMATICS.—Descriptive Geometry. Bowser's *Analytical Geometry.*

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic Chemistry (Experimental Lectures).

DRAWING.—Linear Perspective. Geometric and Isometric Drawing. Projection of Shadows. Architectural Detail and Ornament. Gothic Tracery. Shading in India Ink. Free Hand Drawing.

ENGLISH.—Rhetoric completed. Lounsbury's *English Language.* Six Compositions. Two Declamations.

GERMAN.—Selections from Virchow and Hotzendorff's *Wissenschaftliche Vorträge.* Practical Exercises. Specimens of the modern Drama.

FRENCH.—Modern Prose (continued). Molière.

TECHNICAL COURSES.

JUNIOR YEAR.

STUDIES PURSUED BY THE WHOLE CLASS.

LOGIC.—Jevons's *Lectures on Logic.* Ethics.

HISTORY.—Lectures on Modern History, in connection with Wilhelm Müller's *Political History of Present Times* as a text-book.

PHYSICS.—Sound, Heat, Light, and Electricity.

GERMAN.—Scientific Essays.

FRENCH.—Racine or Corneille. Molière.

ENGLISH.—Critical Study of English Prose Writers, with Special Reference to Composition. Six Compositions. Two Declamations.

1. *Studies pursued by the Chemical Section.*

CHEMISTRY.—Laboratory Practice and Recitations. Douglass and Prescott's *Qualitative Analysis.* Lectures on Organic Chemistry, begun in Second Half-Year.

MINERALOGY.—Crystallography. Native Elements, and Sulphides.

BOTANY.—Structure of Woods.

Digitized by Google

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING.—Construction of parts of Mines, and of Mining machinery, from notes and sketches.

MINERALOGY.—Same as First section.

GEOLOGY.—Lithology; Palaeontology of Protozoa, Anthozoa, and Echinodermata.

SURVEYING.—The same as Third Section.

MATHEMATICS.—Differential and Integral Calculus.

3. *Studies by the Civil Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus.

ENGINEERING.—Railroad Location. Spherical Projections, Shades, Shadows, and Perspective.

STATICS.—Roof and Bridge Trusses, and Merriman's *Mechanics of Materials.*

DRAWING.—Topographical Charts, in ink and colors. Details of frames, joints, etc.

ARCHITECTURE.—Classical Architecture.

SURVEYING.—Field Practice; including Chain Surveying, Use of Compass, Transit and Plane Table in measuring lines and areas, Traversing, Location of Roads, Drains, etc., on Topographical Charts. Recitations from Gillespie's *Land and Higher Surveying*, and *Earthwork Formulæ*, Hydrographical, Mine, and Government Surveying.

CHEMISTRY.—Qualitative Analysis.

4. *Studies pursued by the Dynamical Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus.

STATICS.—The application of the principles of Statics to Rigid Bodies. The Elasticity and Strength of Materials. Forms of uniform strength. Theory of Framed Structures. Stability of structures. Theory of the Arch. Strains in parts of mechanism. The Equilibrium and Pressure of fluids, as water, air, steam, etc.. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of Hydrometers, Manometers, Gauges, etc. The Equilibrium of Funicular Structures.

KINEMATICS.—Slide, Valve, and Link motions. General mathematical theory of Kinematics.

DRAWING.—Copies of bolts and nuts; riveting; gudgeons, pivots, axles, shafts, couplings, pillow-blocks; shaft-hangers, pulleys, sheaves and gear-wheels; connecting rods and cranks, working beams, crossheads pipe connections, valves, steam cylinders, pistons, stuffing-boxes glands, etc., etc.

ENGINEERING.—Graphical Statics. Manual training in Pattern and Machine shop work.

Digitized by Google

5. *Studies pursued by the Architectural Section.*

ARCHITECTURE.—Classical Architecture and Mediæval Ornament. Shading in India ink. Sketching.

MATHEMATICS.—Differential and Integral Calculus.

ENGINEERING.—Graphical Statics.

SENIOR YEAR.

STUDIES PURSUED BY THE WHOLE CLASS.

PHYSICAL SCIENCE.—Special Advanced Physics.

ASTRONOMY.—Newcomb's *Astronomy.*

ENGLISH.—Five Compositions. Two Declamations.

SOCIAL SCIENCE.—Thompson's *Elements of Political Economy*, and Lectures.

METALLURGY.—Theory of Metallurgical Processes. Theory of Dressing and Mechanical Treatment of Ores.

OPTIONAL.

ENGLISH.—English Poets from Chaucer to Tennyson. (Selected Readings to illustrate the Development of the Language.) *Two hours a week.*

1. *Studies pursued by the Chemical Section.*

QUALITATIVE ANALYSIS.—Examination of more or less complex substances. Detection of the rarer elements and organic constituents of bodies. Qualitative analysis by the blow-pipe, in connection with reactions in the humid way, for the rapid determination of minerals and ores. Use of the Spectroscope.

MINERALOGY.—The same as Second Section.

QUANTITATIVE ANALYSIS.—Lectures, Recitations, and Laboratory Practice in gravimetric and volumetric analysis. Assaying of Ores and Fuels.

APPLIED CHEMISTRY.—Instruction in the practical production of Salts, etc., in their greatest perfection and purity. Lectures.

ORGANIC CHEMISTRY.—Lectures continued. Making of organic preparations. Organic, Proximate and Ultimate Analysis.

THEORETICAL CHEMISTRY.

METALLURGY.—Theory of Metallurgical processes; theory and construction of furnaces and other apparatus. Dressing of Ores, considered theoretically and practically. Demonstration of principal metallurgical processes by furnace practice.

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING ENGINEERING.—Lectures on the methods used in prospecting for, and for developing ore and coal deposits. Drawing and modelling (wood and plaster) of topographical and underground surveys.

METALLURGY.—Calculating and drawing of furnaces, ore dressing machines, etc., from notes and sketches, after approved patterns. Experimental treatment of the fundamental processes of oxidation, reduction, and fusion.

Digitized by Google

MINERALOGY.—Oxides, Chlorides, and Fluorides, Sulphates, etc., Phosphates, etc., Carbonates and Silicates.

ASSAYING and Blow-pipe Analysis same as First Section.

ANALYTICAL CHEMISTY.—Qualitative examinations of more or less complex substances. Qualitative analysis by the blow-pipe, in connection with reactions in the humid way, for the rapid determinations of minerals and ores. Lectures, Recitations, and Laboratory Practice in Quantitative Analysis.

PALAEONTOLOGY of Mollusca and Crustacea.

DYNAMICAL ENGINEERING.—The Statics and Dynamics of rigid bodies. Field excursions into the neighboring mineral districts.

MATHEMATICS.—Differential and Integral Calculus.

3. *Studies pursued by the Civil Engineering Section.*

DRAWING.—Shades, Shadows, and Perspective; Platting field notes; Engineering Construction and Stereotomy.

ARCHITECTURE.—Ornament. History of Architecture. Decoration and Shading.

SURVEYING.—A complete course in practical topography, including special instruments and field sketching. Field practice. Reconnaissance, Use of Prismatic Compass, Level, Solar Transit, Repeating Theodolites, and Heliotropes. Sketching.

GEODESY.—Measurements of Bases, Triangulation, Determination of Meridian, Latitude, Longitude, Time, and Azimuth.

ENGINEERING.—Mechanics of Engineering, embracing the Statics of Rigid Bodies, Determination of the Centres of Gravity, Moments of Flexure, Rupture, Resistance, Torsion, Strength and Properties of Materials, etc. Nomenclature of, and Constructions in Masonry, Timber, Iron, and Steel, as applied to Light-houses, Bridges and Roofs, Depots, and other engineering structures. Equilibrium of Arches and Retaining Walls. Tunnelling and Earthworks, with the required plant and organization. Sea-coast and Harbor improvements. Canal and River improvements. Transportation, etc.

BLOW-PIPE ANALYSIS.

4. *Studies pursued by Dynamical Engineering Section.*

KINEMATICS.—Laws of motion. Elementary combinations of Pure Mechanism. Pulleys and belts. Trains of gearings and forms of teeth of wheels. Parallel motions. Practical design of Link and valve motions, with a consideration of the various forms of valves, illustrated by working models.

DRAWING.—From the model and original design.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Occasional visits of inspection will be made to blast-furnaces, foundries, iron and steel-rolling mills, ship-yards, steam and hydraulic forges, etc. Manual training in Machine Shop work.

DYNAMICS.—Lectures on the conditions under which Power is transmitted.

HYDRODYNAMICS.—Water metres. Turbine, Overshot, Undershot, and Breast wheels.

Digitized by Google

5. Studies pursued by the Section in Drawing and Architecture.

DRAWING AND ARCHITECTURE.—The study of Executed Works and of Buildings in Progress. History of Architecture, illustrated by views of structures of all ages. Ornaments. Shading in India Ink. Sketching.

ENGINEERING.—Same as Section 3, so far as to include strength and properties of materials.

POST-SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

GEOLOGY.—Structural Geology of North America with reference to that of Europe, and with the principal minerals and fossils, distribution of metals and fuels. History of Geology.

1. Studies pursued by the Chemical Section.

Theoretical Chemistry.
Lectures on Industrial Chemistry.
Practice in the production of Chemical preparations.
Quantitative Gravimetric Analysis of the simple and complex salts and minerals. Volumetric Analysis and preparation of normal solutions. Gas Analysis.
Determination of the constituents of cast-iron and steel; and Analysis of Manures.
Quantitative Blow-pipe Analysis. Original investigations.
Special Metallurgy—Lectures with the 2d Section.

2. Studies pursued by the Metallurgical and Mining Section.

MINING ENGINEERING.—Lectures on Ventilation and drainage of mines. Special mining problems in faulted strata, more especially in coal mining. The section goes for two weeks to the anthracite Coal region, to make an underground survey; to learn how to examine a mine and report on its condition.

METALLURGY.—Lectures on the production of pig, weld, and temper iron; of silver, copper, and lead. Experimental testing of metallurgical processes. Electricity applied to metallurgy. Visits to metallurgical works in the City and State.

ANALYTICAL CHEMISTRY.—As 1st Section.

DYNAMICAL ENGINEERING.—Principles of Mechanism. Waterwheels and steam engine. Water and steam motors, Rock drills.

GEOLOGY.—The topographic and structural relations of the principal ore deposits in America and Mexico.

ANALYTICAL CHEMISTRY.—Gravimetric and Volumetric Analysis, with special reference to minerals, ores, and metallurgical products; Gas Analysis; Quantitative blow-pipe analysis.

3. Studies pursued by the Civil Engineering Section.

ENGINEERING.—Observation tours, for collection of data, and critical re-

Digitized by Google

ports on works in process of construction. Estimates of cost, prices of labor and materials. Construction and arrangement. Preparation of contracts and specifications. Theses for graduation.

DRAWING.—Details of Engineering Works, Composition, Plans, Sections, Elevations; Profiles and Cross-sections. Working drawings.

HYDROMECHANICS.—Recitations and Lectures.

MODELLING.—Construction of trusses for bridges and roofs, girders, etc. Problems in stone-cutting. Tunnels.

ARCHITECTURE.—Shading, Decoration. History of Architecture (continued).

4. *Studies pursued by the Dynamical Engineering Section.*

THE ANALYSIS AND SYNTHESIS OF MECHANISM.—Machine Tools and their principles.

HYDRODYNAMICS.—Special experimental work in Dynamic Laboratory.

THERMODYNAMICS.—Values of Fuels. Strength, safety, and evaporative power of boilers. Steam and its properties. The Mechanical Theory of Heat. Stationary, locomotive, and marine Steam Engine. Lectures on the proper proportions of the various parts of the Steam Engine. Practical Laboratory work.

ELECTRODYNAMICS.—Measurement of transmission of power by Electricity, etc.; Practical Laboratory work.

LECTURES ON, AND USE OF, INSTRUMENTS.—Steam Engine Indicator. Planimeter. Dynamometer. Odontograph. Slide Rules. Arithmometers. Trammel and Testing Machines. Peaucellier's Compound Compass. Practical use of instruments.

MARINE ENGINEERING and NAVAL ARCHITECTURE.—Special instruction when desired.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Occasional visits of inspection will be made to blast-furnaces, foundries, machine-shops, iron and steel rolling-mills, ship-yards, steam and hydraulic forges, etc., etc.

DRAWING.—Original Designs. Designs and Calculations for special machines. Detailed working drawings, with specifications.

THESES.—Special attention will be given to experimental work in preparation of Theses for Technical Degrees.

5. *Studies pursued by the Section in Architecture and Drawing.*

ARCHITECTURE.—Elements of design and principles of composition. Ornament of all styles. Sketching and measurement of works executed and in progress, building materials and processes. Specifications. Contracts. History of Architecture (concluded).

DRAWING.—Plans, Elevations, and Sections of original designs. Exercises with perspective Views. Water-color. Sketching.

ENGINEERING.—Studies of Construction in Masonry, Timber, Iron and Steel; of Roof Trusses, Girders, etc. Experiments on Strength of Materials, Beams, and Trusses.

Digitized by Google

METHODS OF STUDY.

For the first two years, all studies are required, and are the same for all students. The technical courses begin with the Junior year.

Instruction is thoroughly practical. It is given by lectures and recitations, and in the Laboratories and the Drawing and Model Rooms. These are open to the students all day, and work is required of the higher classes in the afternoon as well as in the forenoon.

In CHEMISTRY the Juniors, having already had during the Sophomore year a full course of illustrated lectures on general inorganic chemistry, receive instruction in mineralogy and qualitative analysis.

They also begin work in the laboratories by making the characteristic reactions of inorganic bases and acids—which are followed by easy qualitative separations. Occasional written reports on the results of their work must be made.

The Seniors receive instruction by lectures and recitations in qualitative and quantitative analysis in all branches thereof, applied chemistry, metallurgy, organic and theoretical chemistry.

In the laboratories the practical work, embracing all of the above branches, is continued. A thesis on some chemical subject is required at the end of the year.

During the first term of the Post Senior year, the work of the Seniors may be continued, if deemed advisable. In the meanwhile the subject for thesis must be chosen in order to allow the student time to read up all accessible matter relating to it, so that the greater portion of the second term can be devoted almost exclusively to the necessary experimental researches in the preparation of the same.

The Post Seniors also attend a course of lectures on the applications of Organic Chemistry in the Industrial Art. This course is fully illustrated by lantern projections, and by suites of specimens from the chemical collections.

Students in METALLURGY and MINING are trained to take intelligent care of the ever growing, important interests represented by those industries. In recognition of the extent of knowledge embraced in this field, the students are given the option to devote themselves more particularly to either branch. Those inclining to become managers of mines, or examining and reporting engineers, will take more studies in civil and mechanical engineering, and those who possess greater aptitude for chemical studies will devote themselves rather to experimental Metallurgy; whilst the lectures provided for the course are participated in by all.—A greater thoroughness is expected to result from this provision. The instruction aims to develop the student's power of self-action and initiative.

Digitized by Google

Students in CIVIL ENGINEERING are instructed by recitations, lectures, and practical work, in order to develop the qualities most required of the practical engineer. Afternoons and Saturdays are devoted to drawing and practical work in the shop, or to surveying or visiting public or private works, manufactories, etc.

During the last year the student's time is devoted largely to examinations and reports upon engineering works in process of construction; to making estimates and designs for new projects, from data collected in the field; and to the preparation of Theses.

In *visiting shops and manufactories*, students are required to collect all the practical information possible, and to embody it in a written report, noting particularly any new or special features for economizing time or materials, improved methods of assembling parts, etc., as well as the general plant, apparatus, and facilities for receiving and shipping materials.

The *field practice* embraces the various problems in chain surveying, the measurement of areas, and the computation of results; line surveys and location, cross sections and levels for estimating quantities, hydrography, topography with the plane-table, and the solution of such geodetic problems as relate to the orientation of maps.

The *Course in Drawing* includes the projection of maps; various methods of representing Topography; conventional signs; problems in shades, shadows and perspective; details of framing; composition; general drawing for constructions in wood, stone, and iron; special designs; working drawings for modelling; plotting; drawing of profiles and cross sections and drawing for theses.

Students of DYNAMICAL ENGINEERING are required to give particular attention to the kinematics of mechanism, to the conditions under which work and power act, and the means of regulating and transmitting the same; to the problems of hydraulics and hydraulic motors, and to the mechanical theories of heat and electro-dynamics with applications to the steam engine, etc., as will appear from the detailed course of study already given.

Special attention is given to the execution of drawings, first from designs and models, and afterwards from calculations; and also to the methods of casting and working in iron, and of making and using machine tools.

Adequate instruction is also provided in Marine Engineering and Naval Architecture.

Visits of inspection will be made during two years of the course to blast-furnaces, foundries, machine shops, and iron and steel rolling-mills.

A special Laboratory is devoted to measurements in Thermodynamics, Electrodynamics, and Hydrodynamics.

Digitized by Google

The course in manual training covers three afternoons a week for two years. The latter year is given to practical work in the Dynamic Laboratory; to special technical work, and to the preparation of a Thesis.

The instruction in PHYSICS extends over three years. In the Junior year the subjects treated are Sound, Heat, Light, and Electricity, the exercises consisting of lectures, illustrated by experiments, with recitations. In the Senior year, special instruction is given in Advanced Physics. Practical instruction in the Physical Laboratory is given throughout the year. The course is optional and is intended for such students only as are competent to take it with advantage.

SPECIAL COURSES.

Special students, not candidates for a Degree, may be received into any of the courses, when the Professor in charge of that course is satisfied of their competency to profit by his instruction. They take all the studies that the Professor thinks necessary to complete the course, together with such others as the Faculty may require. At the end of the course, upon passing the examinations required, and presenting a satisfactory thesis, they receive a Certificate of Proficiency. Application should be made to the Professor in charge of the course which the student wishes to take, and definite arrangements may be made with him—subject, however, to the approval of the Faculty.

LIBRARY.

The Rogers' Engineering Library is composed of standard works treating of drawing, mathematics, astronomy, physics, surveying and explorations, technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering; together with a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams, and drawings.

DEGREES.

The Degree of *Bachelor of Science* (*B.S.*) is conferred on students who have passed creditably through the first four years of the curriculum of this school. An additional Degree indicating the Special Course which they have pursued is conferred at the close of the Fifth Year. These Special Degrees are *Mining Engineer*, *Civil Engineer*, *Mechanical Engineer*, *Architect*, and *Practical Chemist*. A satisfactory Thesis must be prepared and presented by each Candidate for a Degree.

For further information address Professor E. O. KENDALL, LL.D., Dean of the Faculty.

Digitized by Google

A COURSE IN PHILOSOPHY FOR UNDERGRADUATES.

This course provides instruction in Latin, English, French, and German, Mathematics, and Natural Science. During the Junior and Senior years, a large amount of time is devoted to Biological studies, with practical laboratory work, under Prof. Joseph Leidy, the Director of the Biological Department, and the other members of the Biological Faculty. The new Biological Building, with its lecture-room, laboratories for general and special work, its cabinets, herbarium, library, and abundant supplies of material for practical work, affords ample facilities for these studies.

ENTRANCE EXAMINATIONS.

For the Freshman Class, candidates are examined in all subjects required for admission to the Towne Scientific School, and in the Latin required for the Course in Arts, or its equivalent.

For ADVANCED standing, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes. The examinations are held in June and September. Circulars stating the days and the subjects of examination for each day can be had after April 1st, on application to the Clerk of the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

LATIN.—Selections from Livy.

ENGLISH.—Lectures on Prose Composition, with Illustrative Readings from English prose authors, and Compositions on Themes selected from these Readings. Rhetoric (McElroy's *Structure of English Prose*, Part First).

GERMAN.—Whitney's *German Reader*. Hodge's *Course of Scientific German*. Grammar and Exercises.

FRENCH.—Modern French Prose.

HISTORY.—Freeman's *General Sketch of History*.

MATHEMATICS.—Newcomb's *Algebra*. Chauvenet's *Trigonometry*.

DRAWING.—Freehand Drawing.

SOPHOMORE CLASS.

LATIN.—Horace (*Selected Odes or Satires*).

ENGLISH.—*Rhetoric* completed. Lounsbury's *English Language*. Six Compositions, Two Declamations.

GERMAN.—Selections from *Virchow & Holtzendorff's Wissenschaftliche Vorträge*. Practical Exercises. Specimens of the Modern Drama.

Digitized by Google

FRENCH.—Modern French Prose. Molière.

HISTORY.—Lectures.

MATHEMATICS.—Analytical Geometry.

PHYSICS.—Mechanics.

CHEMISTRY.—Inorganic and Organic Chemistry (Experimental Lectures, with Examinations).

JUNIOR CLASS.

ENGLISH.—Critical Study of English Prose Writers, with Special Reference to Composition. Six Compositions. Two Declamations.

HISTORY.—Lectures on Modern History with Wilhelm Muller's *Modern History* as a Text-book, and Compositions on historical subjects.

LOGIC.—Jevon's *Lessons in Logic;* Ethics (Whewell's *Elements*); Murray's *Outlines of Hamilton's Philosophy;* Lectures.

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.*)

CHEMISTRY.—Inorganic Analytical Chemistry.

GENERAL BIOLOGY.—Vegetal Biology. Animal Biology. (Lectures and practical work.) Huxley's and Martin's *Elementary Biology.* Bessey's *Botany.* Brooks' Handbook of *Invertebrate Zoology.* Parker's *Zootomy.*

MAMMALIAN ANATOMY.—Lectures and laboratory exercises. Mivart's *The Cat.* Wilder's *Anatomical Technology.*

BOTANY.—Systematic Botany. Practical exercises. Gray's *Botanical Text-book.* Gray's *Manual of Botany.*

SENIOR CLASS.

ENGLISH.—Chaucer's *Canterbury Tales* (*Selections*). Spenser's Minor Poems. Shakespeare (*Three Plays*). Five Compositions. Two Declamations.*

PHILOSOPHY.—Berkeley's *Principles;* Studies in the *History of Philosophy;* Butler's *Analogy;* Lectures.

SOCIAL SCIENCE.—Thompson's *Elements of Political Economy* and Lectures.

ASTRONOMY.—Newcomb's *Astronomy.*

GEOLOGY.—Systematic and Stratigraphic Geology.

MINERALOGY.—Descriptive Mineralogy.

BOTANY.—1. (*a*) Medical Botany; the plants used in Medicine, adulteration of foods and drugs, or (*b*) Vegetal Morphology. 2. The life histories of plants. Practical exercises. Bessey's *Botany,* Sach's *Text-book of Botany.*

ZOOLOGY.—The outlines of General Zoology and Comparalive Anatomy. The classification and distribution of animals. Lectures. Claus' *Elementary Text-book of Zoology.* Gegenbauer's *Comparative Anatomy.*

ANIMAL HISTOLOGY.—Lectures and laboratory exercises on Microscopic Anatomy. Schafer's *Essentials of Histology.*

---

* Seniors in this course are also admitted to the optional course in English, described on page 43.

Digitized by Google

EMBRYOLOGY.—Lectures and laboratory exercises and the development of the chick. Foster and Balfour's *Elementary Embryology*

PHYSIOLOGY.—The Elements of Physiology. Lectures and practical work. Dalton's *Physiology*.

At the close of Sophomore Year, students may elect to enter the Junior Class in the Course in Arts or in the Wharton School. The Degree of Bachelor of Philosophy is conferred upon students who complete the full course.

Instruction is given by lectures and recitations, and in the Laboratories of the College and Biological buildings. These latter are open all day, and by the higher classes a part of the work is done in the afternoon. Latin, History, Philosophy, Mathematics, and the Physical Sciences are assigned in proportions suitable to the general purpose of the Course. French and German receive special attention in the first two years, with a view to the effective use of text-books in these languages in the Junior and Senior years.

The study of the English Language and Literature extends through the four years, and is intended to be thorough and critical. In Chemistry, the Sophomores attend illustrated lectures on Inorganic and Organic Chemistry, followed in the Junior year by a course of analytical work in the Laboratory.

The instruction in General Biology is in the form of practical laboratory exercises, accompanied by explanatory lectures, and comprises the study of the structure, functions, and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena, manifested in the different forms of living matter, before beginning the study either of Botany or Zoology. The series studied are: (1) Amoeba, Paramœcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Bracken-fern, and Bean-plant as exhibiting the structure and activities of plants. (3) These compared with Sponge, Hydra, Star-fish, Earthworm, Leech, Cyclops, Crayfish, Cockroach, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, Pigeon, and Rabbit as animals.

The course in Mammalian Anatomy consists of lectures on the methods of anatomical investigation, a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy. In the laboratory the class carefully dissects the cat.

The work in Botany, during the Junior year, consists in exercises in the determination and classification of plants, and begins in the second term after the student has finished the first half of the course in General Biology, and has acquired a sufficient knowledge of vegetal structure and physiology. In the first term of the Senior year some choice is permitted. The student may take up Medical Botany, if intending to study medicine, or

Digitized by Google

may devote his attention to more advanced work in plant structure. During the second term the life-histories of plants, their development, growth, and reproduction are studied.

General Zoology and Comparative Anatomy embrace the study of the differences between organic and inorganic bodies; animals and plants; individuals and colonies; cells and cell aggregates; a short account of the tissues; growth and division of labor; organs, their structure; reproduction, general facts of embryology; metamorphosis, alternation of generation, polymorphism and heterogony; systems of classification; the Darwinian theory; species and varieties; a succinct account of the various groups of animals, their anatomy, development and distribution.

Histology is taught, during the first term in the Senior year, mainly by practical work with the microscope. The structure of animal tissues and organs, and the methods of examining and preparing microscopic specimens, are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Embryology of the chick, with laboratory exercises in the preparation and study of the principal stages of development.

The instruction in the elements of Human and Comparative Physiology embraces the following subjects: nutrition, food-stuffs and digestion; circulation; respiration; reproduction; muscular function, including locomotion, speech, etc.; and the functional activity of nerve and brain.

THE COURSE IN FINANCE AND ECONOMY

IN THE

WHARTON SCHOOL.

This school aims to give a thorough, liberal, and professional training to young men who intend to engage in business, or upon whom will devolve the management of property. It also equips more completely persons who are preparing for the profession of Law, for Journalism, or for Public Service. The Founder of the School has remarked that "a great boon would be bestowed upon the nation if its young men of inherited intellect, means, and refinement could be drawn into careers of unselfish legislation and administration; and, as the possession of any power is usually accompanied by taste for its exercise, it is reasonable to expect that adequate education in the principles underlying successful civil government would aid in producing such a class of men."

Digitized by Google

The instruction of the Wharton School is of immediate practical importance to persons who are looking forward to a business career; to legal students desirous of acquiring the best preparation possible for successful practice, and to those who expect to enter the ranks of journalism; while to persons who aim to serve the public in a legislative or administrative capacity, it should be indispensable. The success of the lawyer is often due as much to an extensive acquaintance with business, as to a knowledge of legal principles. For those who are desirous of becoming proficient in economics and finance—and especially for those who expect to teach political science—the Wharton School provides excellent opportunities.

LIBRARY.

The University possesses a large and valuable library of works relating to finance and political economy. The foundation was laid by the great collection of the late Stephen Colwell, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, published before 1860. This has been supplemented (1) by the gift from Mr. McCalmont, of London, of a collection of about three thousand English pamphlets, covering the period from the close of the seventeenth century to our own time, and bound in chronological order; (2) by the bequest of the library of the late Henry C. Carey, which includes many works and pamphlets that appeared since Mr. Colwell's death, and is especially rich in statistical literature, European government reports, and the like.

Original research by the students, under the direction of the professors, is a part of the work of the School.

COURSE OF STUDY.

The course of study extends through two years, and embraces the following studies:

JUNIOR YEAR.

FIRST TERM.

POLITICAL SCIENCE.—Theory of the State. Public Functions. (Lectures and Text-book. Mulfords's *Nation*. Selected portions of Bagehot's *Physics and Politics*. Crane and Moses's *Comparative Politics*.) [3]

AMERICAN POLITICS.—First Term. *Colonial History*. Johnston's *History of the United States*. Preston's *Documents Illustrative of American History*. Preparation of Maps. Washington to Jackson. Johnston's *History of American Politics*. Gay's *Madison*. Morse's *John Quincy Adams*. Preparation of Boundary, Population, and Economic Maps. [3]

POLITICAL ECONOMY.—Thompson's *Elements of Political Economy*. Walker's *Political Economy*. [4]

Digitized by Google

LOGIC.—Jevons's *Logic.* [2]

PHYSICS.—Elementary Physics, Sound and Heat. Lectures. [4]

INTERNATIONAL LAW.—Lectures. (Optional.)

SECOND TERM.

CIVIL GOVERNMENT.—Elements of the Constitutional and Administrative Law of the Federal and State Governments. (Lectures and Text-book.) [3]

AMERICAN POLITICS.—Jackson to date. (Sumner's *Jackson.*) Johnston's *American Politics.* Johnston's *Half Century of American History.* Lectures. [3]

POLITICAL ECONOMY.—Thompson and Walker completed. Laveleye's *Éléments d'Économie politique.* Sidgwick's *Political Economy.* [4]

MORAL PHILOSOPHY.—Whewell's *Elements.* [2]

PHYSICS.—Elementary Physics. Light and Electricity. [4]

SENIOR YEAR.

FIRST TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS. Compositions and Lectures. [3]

MERCANTILE PRACTICE.—Lectures. Bolles's *Practical Banking.* [4]

AMERICAN CONSTITUTIONAL HISTORY.—First Period, 1789–1825. Lectures. (Von Holst's *Constitutional History of the United States.* Bancroft's *History of the Constitution.*) [3]

FINANCE.—Principles and Methods of Public Finance. Objects of Public Expenditure. Revenue from Public Property and Fees. (Lectures. Bolles's *Financial History of the United States.*) [2]

CIVIL GOVERNMENT.—Principles of General Constitutional and Administrative Law. Principles and Comparative Methods of Legislation. Lectures. [2]

ENGLISH CONSTITUTIONAL HISTORY.—Stubb's *Constitutional History of England.* (Optional.)

SECOND TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS.—Composition and Lectures. (Continued.) [3]

MERCANTILE LAW.—Parsons's *Laws of Business.* [4]

RAILROADS.—Kirkman's *Railway Expenditures, their Extent, Object, and Economy.* Hadley's *Railroad Transportation.* (Ten Lectures.)

AMERICAN CONSTITUTIONAL HISTORY.—Second Period, 1825–1885. (Lectures and Text-books.) [3]

FINANCE.—Principles and Methods of Public Finance. Theory and Practice of Taxation. Financial Administration. Local Finance. Lectures. [2]

CIVIL GOVERNMENT.—Principles and Comparative Methods of Public Administration—general and local. Lectures. [2]

STATISTICS.—Principle and Methods of Statistical Science. (Ten Lectures.)

Digitized by Google

CONSTITUTIONAL LAW.—(Optional.)*
ROMAN LAW.—(Optional.)*
PREPARATION OF THESES.

The instruction in Political Economy during the Junior year is that which is usually given to the Junior and Senior classes in colleges. During the Senior year instruction in this branch is given through compositions and discussions by the class, followed by a review, exposition and application of principles by the professor.

Instruction in European Finance comprises the history, and a description and comparison of the financial systems of the principal countries of Europe. American Finance comprises a history of the national, state and municipal systems, and a comparison of them with foreign systems.

The subject of Legislation and Administration is treated comparatively, including the practice of all the principal European countries and our own, beside the varying practice of the several States of the Union.

Instruction in Statistics embraces an investigation of the sphere and function of statistics, with practical training in the proper method of collecting and arranging them.

During the first term, the course in American Politics covers the period from the formation of the Constitution to the close of Jackson's administration. This subject is studied with the aid of text-books and special works; and essays are required on collateral topics. The Senior year is devoted to the Constitutional History of the United States. Much of the work is done by students in libraries. A series of lectures is given on the more important Constitutional questions, and essays thereon are prepared by the students and read in the class-room.

Instruction in Railroads pertains to their organization, cost of construction and operation, and their relation to other industries.

Mercantile Practice covers the usages and methods of business, the management of property and the administration of trusts, and is supplemented and completed by an exposition of the leading principles of Mercantile Law.

SUPPLEMENTARY LECTURES.

Several lecturers not otherwise connected with the Faculty of the School have been engaged to treat special points relating to the regular subjects of instruction. The following lectures are for the year 1886–7:

1. Twelve lectures on the "Constitutional Law of the United States,' by Dr. F. N. Thorpe, Professor of History in the Manual Training High School of Philadelphia, and Fellow in Political Science of the University

* These courses are given in the Law School, but are open to Wharton School students.

Digitized by Google

of Pennsylvania. Four of these lectures are devoted to a discussion of the "Fundamental Rights," two to the Legislative Departments, two to the Judiciary, two to the Executive, one to the Law of Administration, and one to the Historical Development.

2. Two lectures on "Taxation in Pennsylvania," by James Collins Jones, Ph.B., Fellow in American History of the University of Pennsylvania.

3. Two lectures on "Legislative Procedure," by the Hon. Robert Adams, A.M., B.F., State Senator from Philadelphia, Graduate of the Wharton School.

4. Two lectures on "German Socialism," by William W. Carlile, Ph.B., Graduate of the Wharton School, recently a member of the Economic Seminaries at Halle and Berlin.

EXAMINATIONS FOR ADMISSION AND ADVANCED STANDING.

Students are admitted to full standing in the Wharton School as candidates for a Degree, who have completed the Freshman and Sophomore years of any American college, whose course is recognized as equivalent to that offered in the corresponding years of the College Department of this University. Students in the Department of Arts, the Towne Scientific School or the Course in Philosophy, who enter the Wharton School Course at the beginning of the Junior year, receive, at graduation, the degree of A.B., B.S., or Ph.B., according to the course from which they have come. Students from other colleges are admitted on the same conditions. Graduates in any course of colleges in good standing may enter the Senior Class without preliminary examination.

Any persons who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the School.

DEGREES.

The degree of Bachelor of Philosophy (Ph.B.) is conferred after satisfactory examination, on all regular students who have pursued the two years' course, and on graduates in Arts or Science of the University of Pennsylvania or of colleges of equal standing who have pursued the course in this School for the senior year.

For additional information, apply to the Secretary, Professor Albert S. Bolles.

Digitized by Google

COURSES OF STUDY IN THE COLLEGE FACULTY.

[Including all extra (Saturday, Machine Shop, etc.) hours.]

SUBJECT OF STUDY.	Course in Arts.				Course in Philosophy.				Wharton School Course.		Scientific Course.																
													Junior.					*Senior.*					*Post-Senior.*				
	Fresh.	*Soph.*	*Junior.*	*Senior.*	*Fresh.*	*Soph.*	*Junior.*	*Senior.*	*Junior.*	*Senior.*	*Fresh.*	*Soph.*	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.
Greek	4	3	3[1]	2[1]	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Latin	5	4	2½[1]	3[1]	2	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
English	2	2	. .	2[1]	2	2	2	2	. .	. .	2	2	2	2	2	2	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
German	. .	1	3[1]	2[1]	4	4	. .	. .	. .	. .	4	4	2[1]	2[1]	2[1]	2[1]	2[1]	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
French	. .	. .	2½[1]	3[1]	4	4	. .	. .	. .	. .	4	4	2[1]	2[1]	2[1]	2[1]	2[1]	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Linguistics	. .	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
History and English Literature	2	. .	1	2	2	. .	. .	. .	. .	. .	2	. .	2	. .	2	2	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
American History	. .	. .	3[1]	. .	. .	2	3	. .	3	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Logic and Philosophy	. .	. .	2	3	. .	2	3	. .	2	. .	. .	. .	2	. .	2	2	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mathematics	5	4	3[1]	2[1]	5	3	. .	. .	. .	. .	5	5	. .	3	3	3	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Astronomy	. .	. .	. .	1½	. .	. .	1½	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1½	1½	1½	1½	1½	. .	. .	. .	. .	. .
Physics	. .	1	4	. .	. .	1	4	. .	4	. .	. .	1	4	4	4	4	4	3	3	3	3	3	. .	. .	. .	. .	. .
Political Economy	. .	. .	. .	1½	. .	. .	. .	1½	4	3	. .	. .	. .	. .	. .	. .	. .	1½	1½	1½	1½	1½	. .	. .	. .	. .	. .
Political Science	. .	. .	. .	. .	. .	. .	. .	. .	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Finance	. .	. .	. .	. .	. .	. .	. .	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mercantile Practice	. .	. .	. .	. .	. .	. .	. .	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2
General Chemistry	. .	3	. .	. .	. .	3	. .	. .	. .	. .	. .	3	1	. .	. .	. .	. .	2	2	. .	. .	. .	. .	. .	. .	. .	. .
Analytical Chemistry	. .	. .	. .	. .	. .	. .	4	. .	. .	. .	. .	. .	12	5	3	. .	. .	16	9	. .	. .	. .	16	7	. .	. .	. .
Applied Chemistry	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	1	. .	. .	. .
Metallurgy	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	3	3	1	1	1	6	6	. .	. .	. .
Mineralogy	. .	. .	. .	. .	. .	. .	. .	2	. .	. .	. .	. .	2	2	. .	. .	. .	4	4	2	. .	. .	. .	. .	. .	. .	. .
Geology	. .	. .	. .	. .	. .	. .	. .	2	. .	. .	. .	. .	. .	1	. .	. .	. .	. .	1	. .	. .	. .	2	7	2	. .	. .
Mining Engineering	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	5	. .	. .	. .	. .	4	. .	. .	. .	. .	8	. .	. .	. .
Civil Engineering	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	6	11	2	2	. .	. .	13	. .	2	. .	. .	26	. .	3
Dynamical Engineering	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	11	. .	. .	. .	. .	14	. .	. .	1	. .	24	. .
Architecture	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	9	. .	. .	4	. .	14	. .	. .	. .	. .	20
Drawing	. .	. .	. .	. .	2	. .	. .	. .	. .	. .	3	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Botany	. .	. .	. .	. .	. .	. .	2	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	3	. .	. .	. .	. .	2
General Biology	. .	. .	. .	. .	. .	. .	6	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Zoology	. .	. .	. .	. .	. .	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mammalian Anatomy	. .	. .	. .	. .	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Histology and Embryology	. .	. .	. .	. .	. .	. .	. .	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Physiology	. .	. .	. .	. .	. .	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
	18	18	24	23	21	21	25	22	16	15	20	22	29	32	31	30	28	31	29	26	21	26	26	30	30	24	27

[1] Elective.

THE COURSE IN MUSIC.

The qualifications required to enter the department are, *first*, a knowledge of the rudiments of music, and, *second*, the ability to play on some instrument—preferably the piano or organ.

The course extends over two years. The year begins on the first Monday in October, and is divided into three terms of ten weeks each. The first year is devoted to Harmony, the second to Counterpoint and Composition.

Persons of both sexes are admitted. The fees are ten dollars ($10) for each term, payable in advance.

A Certificate of Study is awarded to the student who has completed the full course, passed the required examination, and presented as a thesis a satisfactory original composition. It is intended to hold this year and hereafter a Commencement of the Department of Music for the granting of Degrees and awarding of Certificates, and from the theses of the graduating class a certain number will be selected by the Professor to be performed on that occasion. Persons holding these Certificates, may at any subsequent time proceed to the Degree of Bachelor of Music (Mus. Bac.) on the following conditions:—

1. They must be examined in Harmony, Counterpoint, and Composition, by three examiners appointed by the Professor, subject to the approval of the Provost; the examination to be oral or written, or both, at the discretion of the examiners.

2. They must submit to the examiners an original composition in the form of a cantata for solos and chorus, with an accompaniment of at least a quintette of string-instruments.

3. This composition must be of such length as to require at least twenty minutes for its performance; it must contain a four-part fugue; and the accompaniment must be independent, except in the fugue.

4. The composition must be accompanied by a written statement that it is the student's own unaided effort.

For detailed information, apply to

Prof. H. A. Clarke, Mus. D., 223 S. 38th Street.

Digitized by Google

DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics and Diseases of Women and Children*.
D. HAYES AGNEW, M.D., LL.D., John Rhea Barton Professor of *Surgery*, and Professor of *Clinical Surgery*
WILLIAM PEPPER, M.D., LL.D., Professor of *Theory and Practice of Medicine* and of *Clinical Medicine*.
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology*.
JAMES TYSON, M.D., Professor of *General Pathology and Morbid Anatomy*.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy, and General Therapeutics*.
THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry and Toxicology*.
JOHN ASHHURST, JR., M.D., Professor of *Clinical Surgery*.
WILLIAM OSLER, M.D., Professor of *Clinical Medicine*.
EDWARD T. REICHERT, M.D., Professor of *Physiology*.

CLINICAL PROFESSORS.

WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye*.
GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear*.
HORATIO C. WOOD, MD., LL.D., Clinical Professor of *Nervous Diseases*.
LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases*.
LOUIS STARR, M.D., Clinical Professor of *Diseases of Children*.
J. WILLIAM WHITE, Clinical Professor of *Genito-Urinary Diseases*.

Digitized by Google

ASSISTANT PROFESSOR.

EDWARD T. BRUEN, M.D., Assistant Professor of *Physical Diagnosis.*

AUXILIARY PROFESSORS.

JOHN J. REESE, M.D., Professor of *Medical Jurisprudence,* including *Toxicology.*

*JOSEPH G. RICHARDSON, M.D., Professor of *Hygiene.*

N. ARCHER RANDOLPH, M.D., Professor of *Hygiene.*

LECTURERS AND DEMONSTRATORS.

ROLAND G. CURTIN, M.D., Lecturer on *Physical Diagnosis.*

CHARLES K. MILLS, M.D., Lecturer on *Mental Diseases.*

ADOLPH W. MILLER, M.D., Lecturer on *Materia Medica* and *Pharmacy,* and Instructor in *Practical Pharmacy.*

DE FOREST WILLARD, M.D., Lecturer on *Orthopædic Surgery.*

ELLIOTT RICHARDSON, M.D., Lecturer on *Clinical* and *Operative Obstetrics,* and Demonstrator of *Operative Obstetrics.*

JOHN MARSHALL, M.D., NAT. SC. D., Demonstrator of *Practical Chemistry.*

J. WILLIAM WHITE, M.D., Demonstrator of *Surgery.*

GEORGE A. PIERSOL, M.D., Demonstrator of *Normal Histology.*

HENRY F. FORMAD, M.D., Demonstrator of *Morbid Anatomy* and *Pathological Histology,* Lecturer on *Experimental Pathology* and Librarian of the Stillé Medical Library.

HARRY R. WHARTON, M.D., Instructor in *Clinical Surgery,* Lecturer on *Surgical Diseases of Children.*

JOHN B. DEAVER, M.D., Demonstrator of *Anatomy.*

RICHARD H. HARTE, M.D., Demonstrator of *Osteology.*

THOMAS R. NEILSON M.D.,
EDMUND W. HOLMES, M.D., } Assistant Demonstrators of *Anatomy.*

ALBERT L. A. TOBOLDT, M.D., Assistant Demonstrator of *Practical Pharmacy.*

WILLIAM A. EDWARDS, M.D.,
JUDSON DALAND, M.D., } Instructors in *Clinical Medicine.*

J. P. CROZER GRIFFITH, M.D., Assistant to the Professor of *Theory and Practice of Medicine.*

GEORGE E. DE SCHWEINITZ, M.D., Prosector to the Professor of *Anatomy.*

SAMUEL D. RISLEY, M.D., Instructor in *Ophthalmology.*

W. M. L. ZIEGLER, M.D., Instructor in *Otology.*

CARL SEILER, M.D., Instructor in *Laryngology.*

---

* Deceased.

Digitized by Google

FRANCIS X. DERCUM, M.D., Instructor in *Nervous Diseases.*
J. HENDRIE LLOYD, M.D., Instructor in *Electro-Therapeutics.*
A. SYDNEY ROBERTS, M.D., Instructor in *Orthopædic Surgery.*
HENRY W. STELWAGON, M.D., Instructor in *Dermatology.*
HOBART A. HARE, M.D., Demonstrator of *Experimental Therapeutics.*
THOMAS R. NEILSON, M.D., Instructor in *Venereal Diseases.*
WILLIAM L. TAYLOR, M.D., Instructor in *Clinical Gynæcology.*
GWILLYM G. DAVIS, M.D., Assistant Demonstrator of *Surgery.*
EDWARD MARTIN, M.D., Instructor in *Operative Surgery,* Assistant Demonstrator of *Surgery.*
JOHN K. MITCHELL, M.D., Instructor in *Clinical Medicine.*
GEORGE T. KEMP, Ph.D., Demonstrator of *Practical Physiology.*
W. FRANK HAEHNLEN, M.D., Assistant Demonstrator of *Normal Histology.*
GEORGE H. CHAMBERS, M.D., Assistant Demonstrator of *Normal Histology.*
JAMES K. YOUNG, M.D., Assistant Demonstrator of *Surgery.*
ROBERT P. ROBINS, M.D., WILLIAM M. POWELL, M.D., } Instructors in *Physical Diagnosis.*
JAMES R. McCAUSLAND, M.D., Acting Assistant Demonstrator of *Normal Histology.*

The following Students, selected on account of their proficiency in Chemistry, act as Assistants in the Chemical Laboratory:—

John Bacon . . . . . Haverford College.
N. M. Baker . . . . . University of Minnesota.
H. B. Bashore . . . . . Yale College.
J. R. Bryan . . . . . Central High School.
E. A. Curry . . . . . Dickinson College.
A. H. Cleveland . . . . . Lafayette College.
F. East . . . . . Rochester University.
W. D. W. Hall . . . . . Princeton College.
J. M. Hamme . . . . . Lafayette College.
J. S. Heilman . . . . . Lehigh University.
C. L. Leonard . . . . . Harvard University.
Murray G. Motter . . . . . Pennsylvania College.
W. H. Price . . . . . Central High School.
R. W. Sharp . . . . . Dickinson College.
C. D. Sheaffer . . . . . Franklin and Marshall College.

Digitized by Google

The following Students of the third year, selected for their proficiency in Anatomy, act as Assistant Demonstrators of Anatomy:—

Agnew, Hulburt,	Grigg, T. A.,	Leidy, Jos., Jr.,
Allen, A. K.,	Gale, Jno. P.,	Maurer, J. M.,
Berens, T. B.,	Heisler, J. C.,	Marchand, J. V.,
Bowen, C. F.,	Huber, Wm. S.,	Mial, L. L.,
Balliett, T. M.,	Hartswick, T. H.,	McCauley, C. A.,
Brinkman, Leon,	Henkel, A. D.,	McCauley, Jno. W.,
Cattell, H. W.,	Johnson, T. M.,	Norris, R. C.,
Cameron, G. A.,	Jones, Leroy H.,	Pyle, Wm. L.,
Crandall, R. P.,	Keller, H. M.,	Reath, B. B.,
Cleaver, J. Vale,	Knotts, Ira D.,	Stahl, B. F.,
Davis, J. A.,	Kirby, E. R.,	Sprissler, T. R.,
Faries, R.,	Kintzing, P.,	Walker, Jas.,
Grant, H. S.,	Lambach, F.,	Weston, G. D.,
	Witherspoon, J. A.	

The following Graduates of the School conduct the admission examinations in the several cities in which they reside:—

Dr. C. H. Mastin, 110 St. Francis Street, Mobile, Ala.
Dr. Jos. M. Towler, 6 N. Main Street, Columbia, Tenn.
Dr. Eugene A. Grissom, North Carolina Insane Asylum, Raleigh, N. C.
Dr. C. D. Fishburn, 70 McMicken Avenue, Cincinnati, Ohio.
Dr. E. C. Bullard, 185 Harrison Avenue, Boston, Mass.
Dr. C. Gilman Smith, 2220 Calumet Avenue, Chicago, Ill.
Dr. C. H. Boardman, 503 Wabasha Street, St. Paul, Minn.
Dr. W. Fitz Hugh Edwards, 205 Fort Street, Detroit, Mich.
Dr. W. S. Elkin, 70½ Whitehall Street, Atlanta, Ga.
Dr. J. W. Whitbeck, 125 East Avenue, Rochester, N. Y.
Dr. W. T. Bell, City and County Hospital, San Francisco, Cal.
Dr. W. D. Hamaker, Meadville, Penna.

HOSPITAL STAFF.

WILLIAM PEPPER, M.D., LL.D., Professor of *Clinical Medicine.*
D. HAYES AGNEW, M.D., LL.D., Professor of *Clinical Surgery.*
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology.*
JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy.*
JOHN ASHHURST, Jr., M.D., Professor of *Clinical Surgery.*
WILLIAM OSLER, M.D., Professor of *Clinical Medicine.*
WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye.*

Digitized by Google

GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear.*

HORATIO C. WOOD, M.D., LL.D., Clinical Professor of *Nervous Diseases.*

LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases.*

LOUIS STARR, M.D., Clinical Professor of *Diseases of Children.*

J. WILLIAM WHITE, M.D., Clinical Professor of *Genito-Urinary Diseases.*

ROLAND G. CURTIN, M.D.,
EDWARD T. BRUEN, M.D., } Assistant Physicians.

J. WM. WHITE, M.D.,
H. R. WHARTON, M.D.,
RICHARD H. HARTE, M.D., } Assistant Surgeons.

SAMUEL D. RISLEY, M.D., Assistant *Ophthalmic Surgeon.*

WALTER M. L. ZIEGLER, M.D., Assistant *Aural Surgeon.*

HENRY W. STELWAGON, M.D., Assistant *Dermatologist.*

FRANCIS H. DERCUM, M.D., Assistant *Neurologist.*

CHARLOTTE M. HUGO, Superintendent of the Hospital.

WILLIAM E. HUGHES, M.D., Medical Registrar.

BARTON C. HIRST, M.D., Surgical Registrar.

HENRY F. FORMAD, M.D., Pathologist.

JUDSON DALAND, M.D., Curator.

W. M. POWELL, M.D., Surgical Anæsthetizer.

F. A ACHEY, M.D.,
T. S. WESTCOTT, M.D.,
F. A. PACKARD, M.D., } Resident Physicians.

C. B. KIRBY, Ph. G., Apothecary.

DISPENSARY SERVICE.

SAMUEL D. RISLEY, M.D., Surgeon in the Dispensary for *Diseases of the Eye.*

WALTER M. L. ZIEGLER, M.D., Surgeon in the Dispensary for *Diseases of the Ear.*

WILLIAM L. TAYLOR, M.D., Surgeon in the Dispensary for *Diseases of Women.*

DE FOREST WILLARD, M.D.,
A. SYDNEY ROBERTS, M.D., } Attending Surgeons in the *Orthopædic* Dispensary.

JOHN H. MUSSER, M.D., Physician in the Medical Dispensary.

CARL SEILER, M.D., Physician in the Dispensary for *Diseases of the Throat.*

FRANCIS X. DERCUM, M.D., Physician in the Dispensary for *Nervous Diseases.*

H. W. STELWAGON, M.D., Physician in the Dispensary for *Diseases of the Skin.*

M. HOWARD FUSSELL, M.D., Assistant Physician in the Medical Dispensary.

Digitized by Google

RICHARD H. HARTE, M.D.,
CHARLES W. DULLES, M.D.,
JOSEPH M. FOX, M.D.,
JOHN B. DEAVER, M.D., } Attending Surgeons in the Surgical Dispensary.

WILLIAM A. DAVIS, M.D., Assistant Surgeon in the Dispensary for Diseases of Women.

JAMES WALLACE, M.D.,
G. E. DE SCHWEINITZ, M.D., } Assistant Surgeons in the Dispensary for Diseases of the Eye.

JAMES HENDRIE LLOYD, M.D., Assistant Physician in the Dispensary for Nervous Diseases.

THOMAS R. NEILSON, M.D., Attending Surgeon in the Dispensary for Venereal Diseases.

JOHN SHEETS, M.D.,
LEDRU P. SMOCK, M.D., } Assistant Physicians in the Dispensary for Diseases of the Throat.

WILLIAM J. TAYLOR, M.D.,
HOBART A. HARE, M.D., } Attending Physicians in the Dispensary for Diseases of Children.

FREDERIC H. MILLIKEN, M.D.,
JAMES K. YOUNG, M.D., } Assistant Surgeons in the Orthopædic Dispensary.

WILLIAM R. HOCH, M.D., Assistant Surgeon in the Dispensary for Diseases of the Ear.

HOWARD REEVES, M.D., Assistant Physician in the Dispensary for Diseases of the Throat.

All communications should be addressed to

JAMES TYSON, M.D.,
Secretary of the Faculty of Medicine, University of Penna.,
Philadelphia, Penna.

☞ The Secretary's office is in Medical Hall, where all business is transacted.

MATRICULATES.

FOURTH YEAR.

Baker, George Fales, B.S. (Univ. of Pa.),	Philadelphia,	Wm. Hunt.
McDonald, John J., M.D,	Cove, Oregon,	Univ. of California.
Prentice, Frederic W., M.D.,	Urbana, Ill.,	Cin. Coll. Med. & Sur.
Stevens, Arthur A., A.B. M.D.,	Philadelphia,	Univ. of Penna.

Students of the Fourth Year, 4.

Digitized by Google

THIRD YEAR.

Addison, Thomas G., Jr.,	Washington, D. C.,	John W. Bayne.
Agnew, Hulbert, A.M.(Princeton),	Philadelphia,	D. Hayes Agnew.
Allen, Americus R.,	Carlisle,	S. B. Kieffer.
Andrews, George E., A.B. (Univ. of Rochester),	Granville, Ohio,	R. M. Moore.
Atlee, William A., Jr.,	Lancaster,	Jno. L. Atlee.
Balliet, Tilghman M., A.B., (Franklin and Marshall),	New Mahoning,	M. J. Williams,
Barney, Delbert, A.B. (Lafayette),	Wilkes-Barre,	University.
Bemish, Reuben H.,	Rochester, N. Y.,	Whitbeck&Williams
Berens, T. Passmore,	Philadelphia,	B. Berens.
Bermudez, Salvador,	Leon, Nicaragua,	Judson Daland.
Bowen, Cuthbert F., B.A. (Durham University),	Philadelphia,	Wm. H. Freeman.
Bowman, David P., B.E.,	Koiner's Store, Va.,	University.
Bradley, Edward T.,	Gallitzin,	Robert Devereaux.
Bradford, T. Hewson, M.D.,	Philadelphia,	Jeff. Med. College.
Brinkmann, Leon,	Philadelphia,	Jno. B. Deaver.
Burns, Samuel W.,	Philadelphia,	University.
Cameron, George A.,	Zion, Md.,	P. B. Housekeeper.
Carlisle, Paris T., Jr.,	Frederica, Del.,	Thomas Cahall.
Cattell, Henry W., A.B. (Lafayette),	Philadelphia,	Trail Green.
Chamorro, Filadelfo, B.S.,	Granada, Nicaragua,	University.
Church, Joseph G.,	Shenandoah,	D. S. Marshall.
Clarkson, J. A. Coleman, A.B. (Dickinson Seminary),	Altoona,	Jno. Fay.
Cleaver, J. Vale,	E. Bethlehem,	Q. C. & C. T. N. Farquhar.
Clewell, Cary K.,	Telford,	J. E. Bauman.
Crandall, R. Percy,	Brooklyn, N. Y.,	T. V. Crandall and Judson Daland.
Curtis, George L., DD.S.,	Syracuse, N. Y.,	Chas. M. Magee.
Cyphers, Millard F.,	Wilkes-Barre,	J. A. Murphy.
Davis, James A., Ph.G.,	Greensburg,	R. B. Hammer.
Dingee, Charles,	Newportville,	Richard Dingee.
Dongion, Giragos,	Dearbeker, Armenia,	University.
Doron, John George, A.B. (Brown),	Mt. Holly, N. J.,	J. C. Brown.
Douglas, Malcolm, Jr.,	E. Wareham, Mass.,	P. Hooper.
Edgar, Lambert H.,	Philadelphia,	J. M. Edgar.
Ely, Thomas C., Jr., Ph. B. (Madison Univ.),	Philadelphia,	T. V. Crandall and Judson Daland.
Espinoza, Alexandro,	Managua, Nicaragua,	University.
Farr, William W.,	Philadelphia,	J. C. Wilson.
Fell, Alexander G., B.S. (Princeton),	Wilkes-Barre,	J. A. Murphy.
Ferrer, Adolfo Leon,	Tabasco, Mexico,	University.
Fitzpatrick, Charles, Jr.,	Chattanooga, Tenn.,	R. J. Levis.
Frost, William M., A.B. (Dickinson),	Shamokin,	University.
Fundenberg, George B., Jr., A.M. (Western University),	Pittsburgh,	W. F. Fundenberg.
Gale, John P.,	Woodland, Cal.,	Jonas Clark.

Digitized by Google

Gallagher, Thomas D. J., A.B. (Georgetown),	Mt. Carmel,	D. J. McKibben.
Givin, S. A. Mercer,	Clifton Heights,	J. H. Musser.
Glover, George B., A.B. (Emory),	Monticello, Fla.,	Robert Battey.
Grant, Horace S.,	Navarre, Ohio,	Jas. Fraunfelter.
Grigg, Thomas A.,	Tyne Valley, P. E. I.,	University.
Hartswick, Thomas H.,	Clearfield,	J. G. Hartswick.
Hartzell, Charles A.,	Fayetteville,	M. B. Hartzell.
Head, Joseph, DD.S.,	Germantown,	N. A. Randolph.
Heisler, John Clement, Ph.G.,	Philadelphia,	University.
Henkel, Alfred Davis,	New Market, Va.,	M. A. Henkel.
Huber, William S., DD.S.,	Lebanon,	Wm. M. Guilford.
Hugenschmidt, Arthur C., DD.S.,	Paris, France,	Thos. W. Evans.
Hunt, Charles D.,	Williamsport,	University.
Hutchinson, Randall, A.B. (Princeton),	Lawrenceville, N.J.,	University.
Jennings, John E.,	Harrisburg,	T. J. Dunott.
Johnson, Theodore M., Ph.G.,	Huntington, Ind.,	James Mecray.
Jones, Kent C.,	Milton, Del.,	R. D. Jones.
Jones, Le Roy H.,	Utica, N. Y.,	Wm. & C. P. Russell.
Juat, Francis, A.B. (Cheseaux),	Switzerland,	University.
Keller, Harry M.,	Stroudsburg,	T. C. Walton.
Kintzing, Pearce, B.S. (Lafayette),	Lock Haven,	R. Armstrong.
Kirby, Ellwood R.,	Philadelphia,	University.
Knotts, Ira D.,	Davistown,	Spencer Morris.
Lacayo, Alfonso, A.B.,	Leon, Nicaragua,	University.
Lake, Wilson A.,	Green Creek, N. J.,	J. H. Ingram.
Lambach, Frederick, Jr.,	Princeton, Iowa,	John Knox.
Leaman, William G.,	Black Horse,	University.
Leidy, Joseph, Jr., A.B. (Central High School),	Philadelphia,	Joseph Leidy.
Lord, Jere W., A.B. (Johns Hopkins),	Baltimore, Md.,	University.
Macias, José J., Ph. B.,	Leon, Nicaragua,	University.
Marchand, Jacob F., A.M. (Wash. & Jefferson),	Irwin,	W. D. Hamaker.
Maercklein, Bernhard G., DD.S.,	Milwaukee, Wis.,	University.
Martin, Charles B.,	Bart,	University.
Martin, Peter J. J.,	Easton,	I. Ott.
Maurer, James M., A.B. (Lafayette)	Mt. Carmel,	E. Samuels.
Mial, Leonidas L., A.B. (Univ. of N. C.),	Raleigh, N. C.,	E. B. Haywood.
Moylan, Peter F.,	Pittston,	R. H. Hutchins & J. J. Moylan.
McAlister, John B., A.B. (Penna. College),	Gettysburg,	J. B. Scott.
McCauley, Charles A.,	Columbia,	University.
McCauley, John W., A.B. (Union College),	Stanley, N. Y.,	A. D. Allen.
McCreight, Robert, Ph.G.,	Philadelphia,	University.
Nickle, S. Pusey,	Port Deposit, Md.,	Robt. E. Bromwell
Norris, Richard C., A.B. (Dickinson),	Washington, D. C.,	University.
O'Brien, Thomas C.,	Conshohocken,	Hiram Corson.

Digitized by Google

Peters, H. Vance, A.M.,	Philadelphia,	University.
Pyle, William L.,	West Chester,	E. W. Pyle.
Reath, Benjamin B., Jr., A.B. (Univ. of Penna.),	Philadelphia,	Richard H. Harte.
Reeder, Jeremiah V.,	Muncy,	H. M. Essick.
Rodgers, Robert, Jr.,	Philadelphia,	J. Howard Evans.
Roessler, George F., Ph.G.,	Berlin, Germany,	Henry Beates.
Rudderow, Francis, A.B. (Univ. of Pa.),	Philadelphia,	B. J. Rudderow.
Salinas, Sebastian, B.S.,	Leon, Nicaragua,	University.
Schantz, William S.,	Hosensack,	H. Bobb.
Shissler, Alfred G.,	Shamokin,	C. W. Weaver.
Smith, Joseph R.,	Wilmington, Del.,	L. H. Dravo.
Snavely, Harry B., Ph.G.,	Lancaster,	S. B. McCleery.
Spencer, Elwood P.,	Dover, Del.,	J. H. Wilson.
Sprissler, Theodore, Ph.G.,	Philadelphia,	University.
Stahl, B. Franklin, Ph.G.,	Philadelphia,	J. H. Grove.
Stein, James,	Girardville,	J. C. Biddle.
Stiles, William E.,	Pittston,	J. J. Walsh.
Stout, C. Edwin,	Bethlehem,	Abraham Stout.
Talley, Frank W.,	Wilmington, Del.,	D. W. Maull.
Taylor, William B., A.B. (Univ. of Wooster),	Turtle Creek,	R. S. Sutton.
Townes, William C., Ph.B. (Univ. of Miss.),	Oxford, Miss.,	University.
Trout, John Harry, Ph.G.,	Landisville,	P. M. Kelly.
Turnbull, Thomas, Jr.,	Hartford, Conn.,	Wm. B. Breed.
Tybout, Richard Raymond,	New Castle, Del.,	Jno. J. Black & D. F. Woods.
Walker, William J.,	E. Bethlehem,	Q. C. & C. T. N. Farquhar.
Warder, Charles B., M.D.,	Philadelphia,	Jeff. Med. College.
Waterhouse, Charles F., A.B.,	Cincinnati, Ohio,	J. P. Waterhouse.
Weston, George D., B.S. (Dartmouth),	Windsor, Vt.,	Lewis D. Harlow.
Windrufva, Sven, M.F.C. (Univ. Upsala),	Philadelphia,	University.
Witherspoon, John A.,	Columbia, Tenn.,	Robert Pillow.
Wood, Stephen Carroll, A.B. (Yale),	Philadelphia,	Spencer Trotter.
Yard, John S.,	Trenton, N. J.,	J. J. B. Ribble.

Students of Third Year, 120.

SECOND YEAR.

Adler, Lewis H., Jr.,	Philadelphia,	L. H. Adler.
Alleman, Horace M., A.B. (Lafayette),	Hanover,	H. Alleman.
Andrews, Warren W., B.S. (Dickinson Seminary),	Lock Haven,	E. G. Walls.
Atwater, Edward P.,	Sydney, Aus.,	Kingsbury & Breneman.
Baker, James H., A.B. (Hamilton College),	Clinton, N. Y.,	University.

Digitized by Google

Barberena, Narciso, B.S.,	Granada, Nicaragua,	University.
Blake, Lewis J., A.B. (Wofford College, S. C.),	Spartanburg, S. C.,	University.
Bolton, Samuel, Jr., A.B. (Bucknell),	Philadelphia,	University.
Bowman, John H., B.S. (Dickinson Seminary),	Mifflinville,	J. J. Brown.
Bulette, Wilbur W.,	Constitution,	T. M. & J. M. Curran.
Burger, Francis J.,	Lancaster,	A. J. Burger.
Bushong, John W.,	Philadelphia,	University.
Canfield, William C.,	Bristol, R. I.,	Herman Canfield.
Cates, Benjamin B.,	Marysville, Tenn.,	J. W. Cates.
Cawley, Morris Franklin,	Allentown,	J. I. Cawley.
Coldren, William A.,	Van Wert,	A. J. Fisher.
Colter, Frederick G.,	Woodstock, N. B.,	N. R. Colter.
Cooke, Edwin S., A.B. (C.H.S.),	Philadelphia,	University.
Diefenderfer, Walter B., M.E.,	Auburn,	J.T. & J.S. Carpenter.
Downes, Randolph H., Ph. G.,	Templesville, Md.,	University.
Downs, Norton,	Germantown,	R. N. Downs.
Duer, S. Naudain, A.B. (Univ. of Penna.),	Philadelphia,	Edw. L. Duer.
Easter, Daniel M.,	Baltimore, Md.,	University.
Eckman, Philip N.,	West Pittston,	University.
Egbert, Seneca, A.B. (Princeton),	Franklin,	S. Bredin.
Faries, Randolph, A.B. (Univ. of Penna.),	Philadelphia,	J. Wm. White.
Foltz, J. Clinton, A.B. (Princeton),	Lancaster,	W. S. W. Ruschenberger.
Frame, Joseph K.,	Millsboro', Del.,	H. G. M. Kollock.
Frey, Lewis,	Scranton,	R. H. Gibbons.
Friend, Samuel H.,	Milwaukee, Wis.,	H. M. Brown.
Gentry, Alan F., A.B. (Central High School),	Philadelphia,	University.
Gillam, William S.,	Langhorne,	Elliot Richardson.
Gill, Walter Myers,	Allegheny,	B. Kerr.
Goodwin, Eugene B.,	Kenton, Del.,	W. W. Keen & J. A. Goodwin.
Greenewalt, Frank L.,	Chambersburg,	S. G. Lane & C. F. Palmer.
Greene, Walton S.,	Aberdeen, Miss.,	J. M. Greene.
Green, John Traill, A.B. (Lafayette),	Easton,	Traill Green and E. M. Green.
Griesemer, Howard,	Reading,	W. Murray Weidman.
Guerrero, José B.,	Managua, Nicarag.,	University.
Gummey, Frank Bird,	Germantown,	Rich. H. Harte.
Hall, George Benjamin,	Renovo,	Wm. E. Hall.
Hall, Harry N., Ph. G.,	Aguascalientes, Mex.	H. S. Squires.
Hamill, Samuel M.,	Lemont,	R. H Hamill.
Hand, William Nelson,	Woodstock, N. B.,	C. P. Connell.
Harding, Frank H.,	Mansfield, Ohio,	R. Harvey Reed.
Hatch, John Leffingwell,	Rochester, N. Y.,	Jos. A. Biegler and Judson Daland.

Digitized by Google

Hay, Charles McKenzie,	Woodstock, N. B.,	M. F. Bruce.
Hayes, Joseph,	Spring Hill Mines, N. S.,	J. W. Cove.
Hepler, Harry A.,	Reading,	Howard S. Reeser.
Heyl, Ashton Bryant,	Philadelphia,	University.
Humphrey, Glennis E.,	Union City,	O. L. Abbey.
Hunter, James, Jr., Ph. G.,	Philadelphia,	University.
Hutchison, J. Cooper, B.S. (Lafayette),	Easton,	University.
Jarecki, Edwin,	Erie,	University.
Johnson, Elmer, E., A.B. (Muhlenberg),	Norristown,	B. K. Johnson and Judson Daland.
Jones, Charles J.,	Camden, N. J.,	J. Wm. White.
Kahn, Joseph,	Milwaukee, Wisc.,	University.
Kalbach, A. Frank, A.B. (Franklin & Marshall),	Philadelphia,	University.
Kelly, John J.,	Parsons,	University.
Keogh, Francis J., Ph. G.,	Philadelphia,	University.
Kerns, Alvin J., B.S. (Ursinus),	Slatington,	L. E. Taubel.
Ketcham, Stephen R.,	Philadelphia,	Jno. B. Deaver.
Klapp, Wilbur P.,	Philadelphia,	University.
Knoll, John G. W.,	Buffalo, N. Y.,	A. G. Gumaer.
Landis, Eli Barr,	Lancaster,	S. T. & M. L. Davis.
Le Conte, Robert G., A.B. (Univ. of Penna.),	Philadelphia,	W. W. Keen.
Lenahan, Frank P.,	Wilkes-Barre,	C. W. Spayd.
Lincoln, William R.,	Philadelphia,	University.
Long, Frederick F.,	Pittsfield, Ill,	University.
Mackey, David,	Lewisville,	J. G. West.
Mallon, James P., Ph. G.,	Philadelphia,	I. P. Strittmatter.
Manship, Sheridan P.,	Milton, Del.,	Millard F. Corkran.
Marenco, Constantine, B.S.,	Granada, Nicaragua,	Judson Daland.
Mathews, George S., A. B. (Brown),	Temple,	University.
Miller, Edwin H.,	Camden, N. J.,	Alex. McAllister.
Miller, Milo G., A.B. (Western Univ.),	Pittsburgh,	Jno. M. Duff.
Mitchell, Andrew J., A.B. (Allegheny),	Fredonia,	M. M. Magoffin.
Myers, Oscar M., Ph. G.,	Rochester, N. Y.,	Chas. E. Darrow.
McFarland, Joseph,	Philadelphia,	George H. Horn.
McMillan, James H., A.B. (Washington University),	St. Louis, Mo.,	University.
Newcomer, Frank S., A.B. (Lafayette),	Frankstown, Md.,	University.
Nixon, John Howard,	Wilmington, Del.,	R. J. McKay.
O'Brien, Harry J.,	St. Paul, Minn.,	C. E. Smith & E. J. Abbott.
Paris, Louis J.,	Philadelphia,	University.
Parsons, W. Otis,	Rochester, N. Y.,	C. Green.
Pennock, Walter I.,	Oxford,	University.
Perry, Charles F.,	Norristown,	J. Wm. White.
Peter, Nathaniel,	Siegfried's Bridge,	C. W. Sieger.

Digitized by Google

Pierce, William Chandler,	Wilmington, Del.,	University.
Prevost, Washington Mallet,	Philadelphia,	G. Mallet-Prevost.
Rabe, James W.,	Cleveland, Ohio,	B. A. Rabe.
Randolph, Philip J. S.,	Philadelphia,	University.
Ray, Frank W., A.B., (Union Coll.)	Columbia, S. C.,	P. E. Griffin.
Rea, William F.,	Philadelphia,	Thos. G. Morton.
Riegel, William A., A.B. (Penna. College),	Catasauqua,	H. H. Reigel.
Riley, Gustavus T.,	Washington, D. C.,	G. P. Fenwick.
Ross, Thomas Haven,	Chestnut Hill,	G. McClellan,
Roth, Emil,	Philadelphia,	John Strobel.
Rothrock, John L., A.B. (Penna. College),	Mifflintown,	University.
Saladé, Louis Audenried, A.B. Franklin and Marshall),	Tamaqua,	R. N. Ramsey.
Schoch, Lester E.,	Philadelphia,	W. E. Hughes.
Schoch, Will E.,	Easton,	C. H. Groff.
Schroeder, Charles B., A.B. (Lafayette),	Lock Haven,	University.
Seibert, Albert A.,	Pottsville,	A. H. & G. H. Halberstadt.
Sharples, Caspar Wistar, A.B. (Oregon University),	Eugene City, Ore.,	A. Sharples.
Sharpless, William T.,	West Chester,	Isaac Massey.
Shick, William F.,	Easton,	University.
Shurtleff, Harry C.,	Philadelphia,	University.
Spellissy, Joseph M., A.B. (Georgetown University),	Philadelphia,	University.
Stavely, A. Livingston, A.B. (Princeton),	Lahaska,	W. R. Stavely.
Stevens, John C., B.S. (Dickinson),	Duncannon,	T. L. Johnston.
Steltz, P. Harry,	Allentown,	J. D. Christman.
Sweringen, Budd V.,	Fort Wayne, Ind.,	H. Von Sweringen.
Taillacq, Ricardo,	Cienfuegos, Cuba,	Wm. E. Hughes.
Tam, John L.,	Georgetown, Del.,	University.
Taylor, Harry B., Ph. G.,	Philadelphia,	Wm. T. Taylor.
Thomas, Thomas Brook,	Wilkes-Barre,	W. G. Weaver.
Thompson, Jesse B.,	Hurffville, N. J.,	University.
Troxell, Jere. S., Jr.,	Siegfried's Bridge,	C. W. Sieger.
Vanneman, William S.,	Salem, N. J.,	Mayhew Johnson.
Voorhees, Shepard,	Daggetts Mills,	Chas. Voorhees.
Walter, Charles, A.B. (Central High School),	Philadelphia,	James Collins.
Webster, Charles F.,	Philadelphia,	University.
Whaley, Benton Harris,	Whaleyville, Md.,	University.
Wheeler, Harry S.,	Philadelphia,	University.
Wilbur, William L., A.B. (Princeton),	Hightstown, N. J.,	Lloyd Wilbur.
Wilson, Henry G.,	Philadelphia,	John B. Deaver,
Winston, David Y.,	Auburn, Ky.,	University.
Wolff, Bernard Bunting,	Philadelphia,	University.
Wood, Alfred C., Ph. G.,	Hatboro',	University.

Digitized by Google

Wood, Oran Alphonso,	Blackwood, N. J.,	Jno. D. Heritage.
Yeager, Frank N.,	Berrysburg,	E. L. Yeager,
Zayas, Fernando A. de, A.B.,	Matanzas, Cuba,	Judson Daland.
Zimmerman, Mason W., Ph. G.,	Philadelphia,	University.
Zuniga, Francisco J., A.B.,	Masaya, Nicaragua,	University.

Students of the Second Year, 136.

FIRST YEAR.

Adams, J. Howe,	Philadelphia,	D. Hayes Agnew.
Alrich, William M.,	Philadelphia,	H. W. Rihl.
Anderson, Charles,	Philadelphia,	University.
Anderson, Willis S.,	Shelby, Ohio,	University.
Applebach, Harry E.,	Sellersville,	N. Applebach.
Bacon, John,	Greenwich, N. J.,	H. C. Wood.
Baker, Nathan M., B.S. (Univ. Minn.),	St. Peter, Minn.,	Chas. N. Hewitt.
Bashore, Harvey B., A.B. (Yale),	West Fairview,	D. W. Bashore.
Boger, John A., Jr., A.B. (C.H.S.),	Philadelphia,	D. Hayes Agnew.
Bolling, Robert H.,	Chestnut Hill,	Robt. Bolling.
Boyd, John M., Jr.,	Knoxville, Tenn.,	Jno. M. Boyd.
Brooke, Benjamin,	Philadelphia,	J. Brooke,
Brown, James G.,	Peola Mills, Va.,	O. R. Quaintance.
Bryan, J. Roberts, A.B. (C.H.S.),	Philadelphia,	University.
Burd, William J.,	Belvidere, N. J.,	J. Marshall Paul.
Burdict, S. Dimond,	Philadelphia,	I. H. Andrews.
Butler, Clarence A., A.B.(W.U.P.),	Allegheny,	University.
Canby, Edmund,	Wilmington, Del.,	D. W. Maul.
Carpenter, John T., Jr.,	Pottsville,	J.T. & J.S.Carpenter.
Clarke, James F., B.S. (Iowa State Univ.),	Fairfield, Iowa,	University.
Clark, Robert,	Philadelphia,	University.
Cleveland, Arthur H., B.S. (Lafayette),	Philadelphia,	N. A. Randolph.
Clifford, Lawrence B.,	Latrobe,	J. Q. Lemmon.
Cressman, George S.,	Lafayette Hill,	B. R. Peltz.
Cross, George D.,	Chester,	R. H. Milner.
Crothers, Augustus C., A.B.,	Oakwood, Md.,	R. R. Crothers.
Curry, Edwin Adams, A.B. (Dickinson),	Danville,	J. D. Strawbridge.
Davis, Charles N.,	Bryn Mawr,	University.
Davis, William J.,	Pottstown,	J. Davis & B. B. Wilson.
Deekens, Arthur H.,	Federalsburgh, Md.,	University.
Dimm, Charles H.,	Selins Grove,	P. A. Boyer.
Doughty, A. S. Lincoln,	Berlin, N. J.,	W. C. Raughley.
Durborrow, Samuel Z.,	Philadelphia,	Judson Daland,
East, Frederick, A.B. (Rochester),	Brockport, N. Y.,	Rich. M. Moore.
Ferguson, Albert D.,	Philadelphia,	J. F. Holt.
Fisher, Richard D.,	London, England,	Thos. J. Gallaher.
Fowler, Charles C., A B. (Emory Coll.),	Spartanburg, S. C.,	University.

Digitized by Google

Fox, Horace,	Philadelphia,	Wm. Osler.
Frasse, Irwin N.,	Brooklyn, N. Y.,	Geo. G. Hopkins.
French, Edward M.,	Bethlehem,	University.
Frick, Euclid B.,	San Francisco, Cal.,	Jno. C. Sundberg.
Galbraith, James L., A.B., (C.H.S.),	Philadelphia,	A. G. Reed.
Gallagher, George W.,	Dawson,	E. Phillips.
Gallaher, Thomas J., Jr.,	Pittsburgh,	Thos. J. Gallaher.
Galloway, Albert B., A.B. (C.H.S.),	Philadelphia,	University.
Geissenger, Henry G.,	Philadelphia.	G. W. Griffith.
Gillespie, Frank,	Principio, Md.,	R. R. Crothers.
Greene, William C., A.B.,	Coosawhatchie, S. C.,	F. X. Dercum.
Hall, William D. W., A.B. (Princeton),	Lewes, Del.,	David Hall.
Hamme, John M., B.S. (Lafayette),	York,	University.
Harris, Thomas J., A.B., (Dartmouth),	Claremont, N. H.,	University.
Heil, U. S. Grant,	Easton,	M. T. Prendergast.
Hileman, John S.,	Pittston,	C. W. Heffner.
Horning, Frank L.,	Landingville,	D. Dechert.
Howerter, Emanuel L., B.E.,	Stony Run,	University.
Hull, Waldo W.,	Williamsport,	W. R. Hull.
Hunsberger, J. Newton,	Skippack,	Sam'l Wolfe.
Jenkins, Thomas H.,	Pittston,	W. J. Butler.
Johnson, Albert T. W.,	Nassau, W. I.,	T. W. Johnson.
Johnston, William G.,	Titusville,	University.
Keefer, Frank R., Ph.B. (Dickinson Coll.),	Philadelphia,	C. De Witt.
Keiser, Elmer E., A.B. (Bucknell Univ.),	Lewisburg,	University.
Kneass, Samuel S., A.B. (Univ. Penna.),	Philadelphia,	University.
Kulp, John Stewart,	Wilkes-Barre,	J. A. Murphy.
La Motte, Harry,	Plattsburgh, N. Y.,	Ch. F. Mason.
Lear, John, A.B. (Lafayette),	Easton,	University.
Lederman, Moses D.,	Lancaster,	M. L. Herr.
Leonard, Charles L., A.B. (Univ. of Penna. and Harvard),	Philadelphia,	University.
Linderman, Herbert,	Quakertown,	R. J. Linderman.
List, Charles W.,	Wheeling, W. Va.,	Jno. L. Dickey.
Longshore, James B.,	Philadelphia,	G. D. O'Farrell.
Martin, Ernest D., A.B. (Central Coll.),	Danville, Ky.,	A. W. Johnstone.
Mercer, Charles P., Ph.B. (Univ. of Penna.),	Philadelphia,	S. T. Neuber.
Miles, Thomas J.,	Sac's & Fox Agency, Ind. Ter.,	University.
Miller, Charles L.,	Lebanon,	S. T. Weiss.
Miller, Horace W.,	Urbana, Ill.,	J. T. Miller.
Miller, Morris Booth,	Media,	Chas. J. Essig.
Milnor, William S., A.B. (C.H.S.),	Philadelphia,	University.
Moore, Cyrus Chester,	Moore's Salt Works, Ohio,	D. W. Jones.

Digitized by Google

Motter, Murray G., A.B. (Penna. Coll.),	Washington, D. C.,	University.
McClure, John T.,	Philadelphia,	University.
McConnell, James W.,	Manayunk,	C. K. Mills.
McCormick, Louis P.,	Connellsville,	University.
McGalliard, Benjamin W., Ph.B. (Lafayette),	Bridgeton, N. J.,	University.
McGill, Will B.,	Marionville, Mo.,	University.
McNaugher, Samuel N., A.B. (Westminster),	Allegheny,	University.
Naylor, Walter W.,	New Hope,	G. L. Romine.
Neuber, George G. E., A.B. (Univ. of Penna.),	Philadelphia,	S. T. Neuber.
O'Hara, Michael, Jr.,	Philadelphia,	M. O'Hara.
Paff, Edwin H.,	Allentown,	W. S. Berlin.
Patrick, William S.,	Quinton, N. J.,	T. J. Smith.
Phillips, Horace,	Philadelphia,	University.
Pickerell, Evan,	Minerva, Ky.,	J. A. Reed.
Posey, William C., A.B. (Univ. of Penna.),	Philadelphia,	University.
Price, William H., A.B. (C.H.S.),	Philadelphia,	R. J. Levis.
Quin, Granville P.,	Philadelphia,	E. Holmes.
Rawlins, Benjamin L.,	Dallas, Texas.,	Jno. H. Morton.
Rhodes, Oreon S.,	E. Stroudsburg,	T. C. Walton.
Roach, Walter W., A.B. (C.H.S.),	Philadelphia,	Horace Ladd.
Roseneau, Milton J., A.B. (C.H.S.),	Philadelphia,	University.
Rote, John P., A.B. (K.S.U.),	San Antonio, Texas,	University.
Rothermel, Pius,	Molltown,	University.
Salter, William Homes,	Philadelphia,	University.
Schaeffer, Charles D., A.B. (F. & M. Coll.).	Kutztown,	A. L. C. Hottenstein.
Schneider, Louis T.,	Philadelphia,	Geo. A. Bodamer.
Scott, Charles G.,	Roarkee, India,	University.
Scott, J. Allison, A.B. (Univ. of Penna.),	Philadelphia,	W. D. Green.
Sharp, J. Riddle,	Harrington, Del.,	Jno. A. Klump.
Sharp, Richard W., Ph.B. (Dickinson),	Carlisle,	D. F. Woods.
Sinnamon, George,	Philadelphia,	D. O'Callaghan.
Small, J. Frank,	York,	I. C. Gable.
Smith, Rolla L.,	Oakville,	I. Betz.
Snyder, Elmer R.,	Hilltown,	E. T. Johnson.
Speers, Albert C.,	Speers,	University.
Stanton, Howard,	Philadelphia,	John H. Packard.
Stengel, Alfred,	Pittsburgh,	Walter Stengel.
Striegel, Charles A.,	Shenandoah,	University.
Swaving, J. Harry,	Pottsville,	J. T. Carpenter and J. C. Swaving.
Swift, Elisha P., A.B. (Lafayette),	Allegheny,	University.
Thompson, Alexander S.,	York,	J. W. Kerr & W. F. Bacon.
Toulmin, Harry, Ph.B. (Lehigh),	Philadelphia,	University.
Trexler, Jacob F.,	Mertztown,	P. W. Wertz.

Digitized by Google

Tunis, Joseph P., A.B. (Univ. of Penna.),	Philadelphia,	Louis Starr.
Tyson, T. Mellor,	Philadelphia,	James Tyson.
Umsted, William M.,	Coatesville,	Wm. R. Blakeslee.
Van Buskirk, Frederic W.,	Pottstown,	Henry Beates.
Vanmeter, Seymour D.,	San Antonio, Texas,	Judson Daland.
Weiss, George L.,	Lebanon,	S. Weiss.
Weiszgerber, John, Ph.B. (Univ. of Penna.),	Philadelphia,	University.
Wethered, John L.,	Chestertown, Md.,	University.
Whiting, Albert D.,	Philadelphia,	University.
Williams, Charles B., A.B. (Univ. of Penna.),	Philadelphia,	R. J. Levis.
Wilson, George B.,	Kittery, Me.,	C. J. Cleborne.
Wilson, Richard,	Philadelphia,	University.
Wilson, Samuel M., B.A.,	Philadelphia,	Jas. F. Wilson.
Wolf, Charles N.,	Hellam,	J. A. Armstrong.
Woodland, George Y.,	Norristown,	J. Wm. White.

Students of the first year 137.

SPECIAL STUDENTS.

Bell, R. Newton, M.B.C.M.,	Philadelphia,	Univ. of Edinburgh.
Cotiart, Edward M.,	Haverford Sta.,	University.
Craig, Harvey A., M.D.,	Galesburg, Ill.,	Bellevue Hospital, Med. College.
Kingueberg, Eugene R.S., M.D.,	Philadelphia,	Univ. of Buffalo.
Noot, Simon C.,	New York, N. Y.,	University.
Shull, John D., M.D.,	Markelville,	Coll. Phys. & Surg., Baltimore.
Smith, Franklin A., Jr.,	Philadelphia,	University.
Warwick, Hill S., M.D.,	Jersey City, N. J.,	Coll. Phys. & Surg., N. Y.
Willson, William G. G., M.D.,	Baltimore, Md.,	University of Md.

TOTAL.

Students of the fourth year	4
Students of the third year	120
Students of the second year	136
Students of the first year	137
Special Students	9
	406

The total number of new matriculates the present session, including those admitted to advanced standing, is 159.

Digitized by Google

SUMMARY.

Armenia	1	Iowa	2	Ohio	6
Australia	1	Kentucky	3	Oregon	2
Brazil	1	Maine	1	Pennsylvania	262
California	2	Maryland	12	Pr. Edward's Island.	1
Connecticut	1	Massachusetts	1	Rhode Island	1
Cuba	2	Mexico	2	South Carolina	4
Delaware	15	Minnesota	2	Switzerland	1
Dist. of Columbia.	4	Mississippi	2	Tennessee	4
England	1	Missouri	2	Texas	3
Florida	1	New Brunswick	3	Vermont	1
France	1	New Hampshire.	1	Virginia	3
Germany	1	New Jersey	16	West Indies	1
Illinois	4	New York	14	West Virginia	1
India	1	Nicaragua	11	Wisconsin	3
Indiana	2	North Carolina	1		
Indian Ter.	1	Nova Scotia	1	Total	406

ORGANIZATION OF THE MEDICAL SCHOOL.

This venerable Institution, the oldest of its class in the United States, was founded in 1765, by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. Through Dr. Morgan, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of Cullen, Dr. WM. SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica, and in June, 1768, a "Commencement was held" at which medical honors were bestowed, the first in point of time in America. In 1769, Dr. BENJAMIN RUSH was elected Professor of Chemistry, and Dr. THOS. BOND of Clinical Medicine.

To the Faculty thus composed of MORGAN, SHIPPEN, KUHN, RUSH and BOND have succeeded, at various times, professors whose reputation has been national, such as BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. RODGERS, CARSON, the elder PEPPER, FRANCIS GURNEY SMITH and NEILL.

The number of its graduates is ten thousand and four.

ADMISSION.

Candidates for admission are required: *First*, to write an *Essay* (not exceeding in length a page of foolscap), as a test of Orthography and Gram-

Digitized by Google

mar; *second*, to pass an examination in *Elementary Physics* (Part I. of Fowne's *Chemistry*). A Candidate who has received a collegiate degree, or passed the matriculate examination of a recognized college, or who has a certificate covering the *required* subjects from a recognized normal or high school, or a duly organized county medical society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania—may enter without examination.

Students may report to the Secretary for examination at any time after the third Monday in September. Arrangements may be made for examination at other times throughout the year, upon application to the Secretary.*

The attention of those looking toward the study of Medicine is particularly called to the unusual advantages of the Course in Philosophy in the College Department of the University. Students who have pursued satisfactorily the last two years of that course will be exempted from the preliminary examination.

Students who have attended one course in a Medical School (not Homœopathic or Eclectic), are admitted to the Second Year of the University course, upon passing a satisfactory examination in *General Chemistry*, *Materia Medica* and *Pharmacy*, and the elements of *General Pathology*. Students who have attended two courses in a regular Medical School are admitted to the third year, upon passing satisfactorily an examination in *General* and *Medical Chemistry*, *Materia Medica* and *Pharmacy*, *Anatomy*, *Physiology* and the elements of *General Pathology*.

Graduates of regular medical schools in good standing are admitted to the *third* year without an examination. The diplomas of graduates from other schools are not endorsed by the Faculty of this school for registration except after an examination of their holders, similar in all respects to that required of its own graduates. The fee for such examination is thirty dollars.

Graduates of Colleges of Pharmacy and Dental Colleges in good standing are admitted to the *second* year upon passing the entrance examination only.

Examinations for admission to advanced standing for Session 1887–8 will be held Thursday, September 29th, at noon.†

* Examinations for admission will also be held annually during the last week in June in Boston, Mass., Rochester, N. Y., Meadville, Pa., Pittsburgh, Pa., Raleigh, N. C., Columbia, Tenn., Atlanta, Ga., Mobile, Ala., Cincinnati, O., Chicago, Ill., Detroit, Mich., St. Louis, Mo., St. Paul, Minn., San Francisco, Cal. The names of the examiners will be found on page 66.

† Students from other colleges admitted to the second year who have not had instruction in Practical Histology are expected to make up such deficiency by taking a special course, as the second year's work presupposes a knowledge of the technique of the microscope. Students admitted to the third year must make up deficiencies in Pathological Histology as well.

Digitized by Google

COURSE OF STUDY.

The course of study earnestly recommended to students extends over four years, but the course is also arranged for three years, at the end of which the degree may be conferred. For the Fourth Year, almost wholly practical in character, a certificate is granted in addition to the diploma, to those passing a satisfactory examination in the studies of that year.

The FIRST YEAR is largely occupied with work in the various laboratories of Chemistry, Pharmacy, Osteology, Histology, and Physiology, and in Dissection. The first year student may also attend clinical lectures in general medicine and general surgery. In the SECOND YEAR, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Pathological Histology and Physical Diagnosis. Dissection is continued. Throughout the SECOND and THIRD years, the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals, and the clinics in special departments at the former. Special *bedside* instruction in Clinical Medicine, including Physical Diagnosis and Laryngology, in Surgery, and in Gynæcology is given in the third year, as well as opportunities for the practical study of diseases of the eye, ear, throat, and skin, and for acquiring proficiency with the various instruments employed. For this purpose, the third-year class is divided into sections, each of which receives direct personal instruction.

The course of instruction is so arranged as to permit mainly constant introduction of new material, while retaining the repetition of essential subjects aimed at by the old methods. The laboratory instruction is so co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

Advanced students are encouraged to make original researches in the laboratories of pharmacy, chemistry, physiology, pathology, and experimental therapeutics.

The result of the adoption of the prolonged and graded course on the composition of the classes and on their proficiency has been most gratifying. A proportion of students, much larger than ever before, have had a good education, either in colleges or in academies, and their deportment has been characterized by increased earnestness and zeal. The annual examinations have steadily advanced in grade, while those for graduation have shown a degree of merit, and the graduation Theses an amount of scientific attainment and literary culture, higher than has heretofore been found.

Students of the University may attend, without additional charge, the lectures and recitations in all other departments, provided that the consent of the Dean of the department has first been obtained.

Digitized by Google

OUTLINE OF THE COURSE.

FIRST YEAR.	Total hours per week.
Anatomy—3 lectures per week, 10 hours practical anatomy	13
Topographical anatomy—2 lectures per week	2
Histology—2½ hours laboratory instruction, 1 hour demonstration for half session	3
Materia Medica and Pharmacy—1 lecture per week, 2 hours laboratory	3
General Chemistry, including Chemical Physics—2 lectures per week, 4 hours laboratory	6
Physiology—3 lectures per week, 1 hour laboratory	4
General Pathology—1 lecture per week, until March 1st	1
Hygiene—1 lecture per week until March 1st, after which 2 lectures	1
General Clinics, Medical and Surgical	3
Bandaging, 1 hour lecture, 1 hour practice	2

Final Examinations at the end of the Course: General Chemistry, Materia Medica and Pharmacy, and Elements of General Pathology.

SECOND YEAR.	
Anatomy—3 lectures per week, 10 hours evening dissection	13
Topographical Anatomy—2 lectures per week	2
Medical Chemistry—1 lecture per week, 4 hours laboratory	5
Physiology—3 lectures per week	3
General Pathology and Morbid Anatomy—2 lectures per week, 1½ hours laboratory	3½
Physical Diagnosis—1 lecture per week, 1 hour demonstration	2
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Obstetrics—2 lectures per week	2
General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics	8
Special Clinics (Nervous Diseases, Diseases of Skin, Eye, Ear, Gynæcology	5

Final examinations at the end of the Course: Anatomy, including Topographical Anatomy, Medical Chemistry, and Physiology.

THIRD YEAR.	
General Pathology and Morbid Anatomy—2 lectures per week	2
Demonstrations in Morbid Anatomy—1 hour per week	1
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Operative Surgery and Minor Surgery,—1 lecture per week, 2 hours' practice	3
Obstetrics—2 lectures per week	2
Operative Obstetrics—1 hour practice for half the term	½
Diseases of Woman and Children—1 lecture per week	1

Digitized by Google

*Gynæcology—1 lecture per week, 1 hour bedside teaching	2
*Bedside Instruction in Practical Medicine	1
*Bedside Instruction in Practical Surgery	1
General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics	8
Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Paediatrics, Gynæcology at both University and Philadelphia Hospitals), Genito-Urinary Diseases	8½
Medical Jurisprudence and Toxicology	1

Final examinations at the end of the Course: General and Special Pathological Anatomy, Therapeutics, Theory and Practice of Medicine, Clinical Medicine, Surgery, Obstetrics, and Diseases of Women and Children.

FOURTH YEAR.

Clinical Medicine and Physical Diagnosis, including Laryngology—2 hours clinical lecture—2 hours practical instruction	4
Clinical Surgery—2 hours clinical lecture, 1 hour practical instruction	3
Operative Surgery—1 hour practical instruction, for half the term	½
Nervous Diseases and Electro-Therapeutics—1 hour clinical lecture, 1½ hours practical instruction	2½
Mental Diseases—1 hour lecture	1
Gynæcology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction	3
Paediatrics—1 hour practical instruction, for half the session, 1 hour clinical lecture, for half the session	1
Dermatology—1 hour didactic lecture, for half the session, 1 hour clinical lecture, 1 hour practical instruction	2½
Ophthalmology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction	3
Otology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction for half the session	2
Clinical and Operative Obstetrics—1 hour practical instruction for half the session	½
Orthopædic Surgery—1 hour didactic lecture for half the session, 1 hour practical instruction for half the session	1
Genito-Urinary Diseases—1 hour clinical lecture, for half the term	½
Medical Jurisprudence and Toxicology—1 hour lecture	1

To all Students who pursue a four years' course, and who pass a satisfactory examination in the studies of the fourth year, will be awarded a certificate in addition to the diploma. The degree of Doctor of Medicine will also be conferred on graduates of other medical schools in good standing who take the third year of the three years' curriculum, or who attend the fourth year, and who pass a satisfactory examination in Morbid Anatomy, Therapeutics, Practice of Medicine, Surgery, and Obstetrics.

* For these courses the class is divided into sections, so that each student may receive direct personal instruction.

Digitized by Google

TEXT-BOOKS.

FIRST YEAR.

TEXT-BOOKS.	COLLATERAL READING.
Chemistry: Fownes's Chemistry; Muter's Analytical Chemistry.	Wurts's Elements of Modern Chemistry; Richter's Chemistry.
Materia Medica: H. C. Wood. Mann on Prescription Writing.	Wood & Bache's Dispensatory.
Anatomy: Leidy; Gray; Schaeffer's Practical Histology.	Quain; Wilson; Allen; Stricker's Histology.
Physiology: Yeo.	Foster.
General Pathology: Rindfleisch's Elements of Pathology, translated by Mercur; Tyson's Cell Doctrine, pp. 127–152.	

SECOND AND THIRD YEARS.

Medical Chemistry: Greene; Tyson's Practical Examination of Urine; Marshall & Smith's Chemical Analysis of Urine.	Wormley's Micro-Chemistry of Poisons; 2d edition.
Anatomy: Leidy, Gray.	Quain; Allen; Wilson; Stricker.
Physiology: Foster.	Carpenter.
General Pathology and Morbid Anatomy: Rindfleisch's Elements; Coats's Manual of Pathology.	Green, Pathology and Morbid Anatomy; Orth's Diagnosis in Pathological Anatomy.
Therapeutics: H. C. Wood.	Wood & Bache's Dispensatory.
Practice of Medicine: Flint or Roberts; Bruen's Physical Diagnosis.	Pepper's System of Practical Medicine; Stille's Therapeutics; Stille's & Maisch's Dispensatory; Duhring on Diseases of the Skin; Tyson on Bright's Disease and Diabetes; Seiler, Diseases of Throat and Nose.
Surgery: Agnew; Ashhurst.	Smith's Principles and Practice; Ashhurst's International Encyclopædia of Surgery; Erichsen; Billroth's Surgical Pathology.
Obstetrics: Playfair's Midwifery.	Hodge's Obstetrics; West on Diseases of Women; West on Diseases of Children; Meigs and Pepper on Children. Starr on Children.
Gynæcology: Goodell's Lessons in Gynæcology.	Thomas on Diseases of Women; Emmet's Practice of Gynæcology.
Medical Jurisprudence and Toxicology: Reese.	Reese's Manual of Toxicology; Taylor's Medical Jurisprudence, by Reese.

The cost of the necessary text-books is within $50, distributed over the three years.

Digitized by Google

ORDER OF LECTURES, DAILY.—FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.	Chemical Laboratory, two hrs.	Topographical Anatomy.	Dissection.	Philadelphia Hospital, Medical and Surgical Clinics, 10 to 12.
10 A.M.		Chemical Laboratory, two hrs.		Gen. Pathology, until Mar. 1. Hygiene after Mar. 1.		
11 A.M.	Topographical Anatomy.		Hygiene.		Materia Medica.	
12 M.	Practical Normal Histology. One section two hours. Others Osteology or Dissection.	Practical Normal Histology. One section two hours. Others Practical Physiology, Osteology or Dissection.	Practical Normal Histology. One section two hours. Practical Physiology or Dissection.	Practical Normal Histology. One section two hours. Osteology, Practical Physiology or Dissection	Practical Normal Histology. One section two hours. Others Osteology, Practical Physiology or Dissection.	Practical Physiology. One section two hours. Others dissect.
1 P.M.						
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Histology.	Physiology.	Bandaging, Lecture.	Physiology.	
7½ to 10 P.M.	Pharmacy, Laboratory.	Bandaging.	Pharmacy, Laboratory.	Bandaging.	Bandaging.	

U. H. University Hospital.

For the study of Histology, Practical Physiology, Osteology and Syndesmology, the class is divided into sections, one of which is occupied at a time. Students not thus engaged dissect or attend Clinics.—See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8½ A.M.						Medical Chemistry, Laboratory, two hours.
9 A.M.				Medical Chemistry.	Medical Chemistry, Laboratory two hours.	
10 A.M.	Practical, Physical Diagnosis. Sections, U. H.	Practical, Physical Diagnosis. Sections, U. H.	Philadelphia Hospital, Med., Surg. and Gynæcological Clinics, 9 to 12.	Topographical Anatomy.		Philadelphia Hosp., Med. and Surgical Clinics.
11 A.M.	Topographical Anatomy.	Morbid Anatomy.		Medical Clinic.	Morbid Anatomy.	
12 M.	Practice.	Surgery.	Practical Pathol. Histology. One section one hour. Others attend Gynæcological and General Surgical Clinic, U. H.	Surgery.	Surgery.	Practical Pathol. Histology. One section two hours. Others attend Gen. Med. and Surg. Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Practical Pathol. Histology. One section one hour. Others attend Clinic, Skin Diseases, U. H.		Practical Pathol. Histology. One section one hour. Others attend Clinic, Diseases of Eye, U. H.	Practical Pathol. Histology. One section one hour. Others attend Clinic, Nervous Diseases, U. H.	
3½ P.M.	Obstetrics.	Anatomy.	Obstetrics.	Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Phys. Diagnosis. Lecture.	Physiology.	Therapeutics.	Physiology.	Therapeutics.
5½ P.M.		Practice.		Practice.		
7½ to 10 P.M.	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	

U. H. University Hospital.

For the study of Pathological Histology and Physical Diagnosis the Class is divided into sections, one of which is occupied at a time; those of the second-year students not thus engaged attend Clinics.

Digitized by Google

ORDER OF LECTURES, DAILY.—THIRD YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.	Demonstrations in Morb. Anat., 2 Secs.	Clinic Paediatrics U.H., until Jan. 1st.	Philadelphia Hospital, Medical, Surgical and Gynæcological Clinics.	Medical Clinic.	Autopsies.	Philadelphia Hospital, Medical, Surgical and Gynæcological Clinics.
11 A.M.	Demonstrations in Morb. Anat., 2 Secs.	Morbid Anatomy.			Morbid Anatomy.	
12 M.	Practice.	Surgery.	Gynæcological Clinic, U. H.	Surgery.	Surgery.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H. Ward Classes, U. H.	Clinic, Diseases of the Skin, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H. Ward Classes, U. H.	Clinic, Nervous Diseases, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.
3½ P.M.	Obstetrics.	Diseases of Women and Children.	Obstetrics.	Didactic Gynæcology, U. H.	Didactic Dermatology until Jan. 1st. Genito-Urinary Diseases, U. H., after Jan. 1st.	Med. Jurisprudence.
4 P.M.	Operative Surgery and Fracture Dressing, Lecture.	Didactic Ophthalmology, U. H.	Didactic Otology, until Jan. 1st., U. H. Orthop. Surg., after Jan. 1st.	Therapeutics.	Practical Surgery, Two Sections, two hours.	Therapeutics.
5½ P.M.	Practical Surgery, Two Sections. Oper. Obstetrics, Sections, after Jan. 1st.	Practice.		Practice.	Operative Obstetrics, Sections, after Jan. 1st.	

U. H. University Hospital.

For WARD CLASS instruction the third-year class is divided in sections. See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—FOURTH YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.		Clinic, Paediatrics, U.H., until Jan. 1st.	Philadelphia Hospital, Medical, Surgical and Gynæcol. Clinics.		Autopsies.	Philada. Hospital Clinics. After Jan. 1st, Practical Instruction, Pædiatrics.* 9½ A.M.
11 A.M.	Morbid Anatomy			Medical Clinic.	Morbid Anatomy.	
12 M.	Practical Instruction, Skin Diseases, U. H.	Practical Gynæcology. U. H.	Gynæcological Clinic, U. H.	Practical Instruction Orthopædics, until Jan. 1st, U. H. Practical Laryngology after Jan. 1st, U. H.	Clinical Surgery, U. H.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Clinic, Diseases of the Skin, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H.	Clinic on Nervous Diseases, U. H.	Surgical Clinic, U. H.
2½ P.M.	Clinical Medicine.			Practical Ophthalmology, U.H.		
3½ P.M.	Mental Diseases.	Practical Instruction Nervous Diseases, U. H.	Electro-Therapeutics, until Jan. 1st., U. H., Prac. Instruction, Otology, after Jan. 1st., U. H.	Didactic Gynæcology, U. H.	Didactic Dermatology until Jan. 1st. Clinic, Genito-Urinary Diseases, after Jan. 1st, U. H.	Medical Jurisprudence.
4½ P.M.	Operative Obstetrics, until Jan. 1st.	Didactic Ophthalmology, U. H.	Didactic Otol., until Jan. 1st, U. H. Orthopædic Surgery, after Jan. 1st.		Venereal Diseases, until Jan. 1st. Operative Surgery, after Jan. 1st.	

U. H. University Hospital.
* Children's Hospital.

Digitized by Google

ROSTER OF BEDSIDE INSTRUCTION AND SPECIAL CLINICS FOR STUDENTS OF THE THIRD YEAR, SESSION 1886-7.

For attendance upon these Courses, the Third Year Class is divided into four sections, A, B, C, and D, which attend as follows:—

First Period, from Monday, Oct. 4th, to Friday, Nov. 12th, inclusive.

	Monday.	Tuesday.	Thursday.	Friday.
Prof. Goodell	A	—	B	C
" Ashhurst	B	C	D	—
" Osler	C	B	—	D
Special Clinics	D	A & D	A & C	A & B

Second Period, from Monday, Nov. 15th, to Friday, Jan. 14th, inclusive.

Prof. Goodell	B	—	C	D
" Ashhurst	C	D	A	—
" Osler	D	A	—	C
Special Clinics	A	B & C	B & D	A & B

Third Period, from Monday, Jan. 17th, to Friday, February 25th, inclusive.

Prof. Goodell	C	—	D	A
" Ashhurst	D	A	B	—
" Osler	A	C	—	B
Special Clinics	B	B & D	A & C	C & D

Fourth Period, from Monday, February 28th, to Friday, April 8th, inclusive.

Prof. Goodell	D	—	A	B
" Ashhurst	A	B	C	—
" Osler	B	D	—	A
Special Clinics	C	A & C	B & D	C & D

The instruction is given at the University Hospital at 1 o'clock. Professor Osler meets the sections of the Third Class in the Front Ward, Gibson Wing; Prof. Goodell in the Lower Lecture Room; and Prof. Ashhurst in the Front Ward, first floor. The Special Clinics are held in the Upper Lecture Room.

This arrangement enables each section to attend, during an equal portion of the term, the clinical lectures on special subjects, as follows:

1 P.M.

Monday.	*Tuesday.*	*Thursday.*	*Friday.*
Prof. STRAWBRIDGE.	Dr. STELWAGON.	Prof. NORRIS.	Prof. WOOD.
Otology.	*Dermatology.*	*Ophthalmology.*	*Nervous Diseases.*

Digitized by Google

The entire Third Year Class will attend the General Medical, Surgical, and Gynæcological Clinics, held on Wednesday and Saturday, from 12 to 2 o'clock, in the Upper Lecture Room; also Medical Clinic on Thursday, at 11 o'clock, and the Demonstrations in Morbid Anatomy by Prof. Tyson and Dr. Formad at 10 and 11 o'clock on Monday.

SPECIAL ROSTER OF LABORATORY INSTRUCTION IN HISTOLOGY, BIOLOGY, OSTEOLOGY, AND SYNDESMOLOGY, FOR STUDENTS OF THE FIRST YEAR, SESSION 1885–6.

For instruction in these Laboratories the First Year Class is divided into four sections, A, B, C, D, which attend as follows:—

1st Period. *From Monday, October 4th to November 5th, inclusive.*

12 o'clock.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Histology,	A	A	A	A	A	—
Osteology,	C & D	—	—	C & D	C & D	—
Physiology,	—	C	D	B	E	A

2d Period. *From Monday, November 8th to January 11th, inclusive.*

12 o'clock.

Histology,	B	B	B	B	B	—
Osteology,	C & D	—	—	C & D	C & D	—
Physiology,	—	C	D	E	A	B

3d Period. *From December 13th to January 22d, inclusive.*

12 o'clock.

Histology,	C	C	C	C	C	—
Osteology,	A & E	—	—	A & E	A & E	—
Physiology,	—	E	A	B	D	C

4th Period. *From January 24th to February 26th, inclusive.*

12 o'clock.

Histology,	D	D	D	D	D	—
Osteology,	A & E	—	—	A & E	A & E	—
Physiology,	—	E	A	B	C	D

5th Period. *From February 28th to April 2d, inclusive.*

12 o'clock.

Histology,	E	E	E	E	E	—
Osteology,	B	—	—	B	B	—
Physiology,	—	A	B	C	D	E

All students not occupied during the above hours dissect from 12 to 2 daily, and from 9 to 11 Friday.

Digitized by Google

GRADUATION.

At the close of the third year, a student who has passed all examinations satisfactorily, receives the degree of Doctor of Medicine on the following conditions:

I. He must be of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of the curriculum; and his last course of instruction must have been at this School. (A Thesis is no longer required, but students are recommended to prepare Theses in competition for the various Prizes.)

III. After notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

IV. He must be present at Commencement, unless excused by the Faculty.

ADDITIONAL INSTRUCTION.

In addition to the required Course and to the voluntary fourth year, Clinics, both general and special, and Lectures, both Theoretical and Practical, are continued after Commencement until the middle of June. All subjects connected with the fundamental departments of medicine, or with its several subdivisions, as determined by usage, are thoroughly taught in one or other of these courses; and it is strongly urged upon all students, especially those of the second and third years, to continue their studies during the spring and summer, and, by all means, to pursue the studies of the fourth year.

ARRANGEMENT OF SESSIONS.

The Academic Year is divided into two Sessions: the WINTER SESSION, on which alone attendance is required, which is preceded by an INTRODUCTORY COURSE of two weeks, and the SPRING SESSION.

The SPRING SESSION 1887 begins Monday, May 9th, and continues until the middle of June.

The INTRODUCTORY COURSE for the Sessions of 1887–8 begins Monday, September 19th.

The WINTER SESSION 1887–8 begins on Monday, October 3d, and ends at Commencement, on Tuesday, May 1st, 1888.

EXPENSES.

WINTER TERM.

First Year.

Matriculation Fee	$5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection	$150 00
Dissecting material	$1 a part.

Digitized by Google

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection	$150 00
Dissecting material	$1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee)	$150 00
Fee for the full third year course to graduates of other schools, including privilege of applying for graduation (no graduation fee)	$150 00
Material for operating	$1 a part.

Fourth Year (Voluntary).

For general ticket, including all the practical courses of this year (no graduation fee)	$150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee)	200 00

☞ The Tuition fee of $150 each year is *on condition of its being paid before November 1st.* If a division of payments is desired the fee will be $160 for the year. Eighty dollars to be paid before November 1st, and $80 before February 1st.

SPRING SESSION.

Matriculation fee (paid once only)	$5 00
Tuition fee	30 00

This sum will be credited on account of the fee for the ensuing Winter Term.

FEES FOR SPECIAL COU .

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including bandaging and operating, to graduates of this school	$75 00
For a single Course of Lectures, except Materia Medica	20 00
For Course on Materia Medica, and on Bandaging and Operating, each	10 00
For Practical Course in the Chemical Laboratory	25 00
For the Course in Practical Gynæcology of the third year	25 00
For any one of the remaining Practical Courses of the third year	15 00

Digitized by Google

Graduates of the School are admitted to the LECTURES free of charge; but they pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of $5 with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

SCHOLARSHIPS.

A competitive examination of candidates to fill six free scholarships is held annually. (In 1887, on Wednesday, September 28th, at 12 o'clock, noon.) The candidates will be required—

First. To furnish satisfactory evidence that they are without means to defray the expenses of a medical education.

Second. To write a brief autobiography, not exceeding a page of foolscap, which will serve as a test of their qualifications in orthography and grammar.

Third. To pass a written examination in Latin prose translation on the first three books of Cæsar, and a written examination in Physics, which may embrace questions relating to the general properties of matter, Mechanics, Heat, Light, and Electricity. The examination is not confined to the subject matter of any text-book, but Balfour Stewart's Physics covers the ground as nearly as any.

Fourth. They will be required to pay an examination fee of $5, which is not returned, but is transferred to the matriculation fee in the case of the successful candidates.

Candidates who propose to present themselves for examination will send their names, accompanied by the necessary certificate required by the first condition, to the Secretary of the Faculty of Medicine, *before September 15th* and appear without further notice.

FACILITIES FOR INSTRUCTION.

The instruction in the Medical Department is conducted in the MEDICAL HALL, the LABORATORY BUILDING, and the HOSPITAL OF THE UNIVERSITY.

The Medical Hall contains the Wistar and Horner Museum, the Histological, Osteological, Physiological, Pathological, and Pharmaceutical Laboratories, and the Stillé Medical Library.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years

Digitized by Google

ago, has been annually augmented, and is unequalled in the United States for the number and variety of its specimens illustrating the normal and morbid anatomy of every part of the human body. It also contains a large number of preparations in comparative anatomy, and an extensive collection of models, used in illustrating the lectures. The Museum is open on Wednesdays and Saturdays, from 9 A. M. to 12 M., throughout the session, to matriculated students.

THE CABINET OF MORBID ANATOMY, collected by Dr. George B. Wood, and given by him to the University, contains an extensive series of wet preparations, drawings, and models in wax and other materials, a collection unrivalled in extent and value, for illustrating diseases of the internal organs and of the skin.

The late distinguished Professor of Obstetrics, Dr. Hugh L. Hodge, enriched the facilities of Instruction in that special branch by the gift of his valuable Cabinet.

Through a like liberality of Dr. Henry H. Smith, Emeritus Professor of Surgery, and of the late Professor of Clinical Surgery, Dr. John Neill, the University has a further extensive and valuable gift of morbid specimens, models and drawings.

THE HISTOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy, and the direct guidance of the Demonstrators of Histology. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the first course student to become practically familiar with the most approved methods of microscopical technology, as well as with the Normal Histology of all the tissues and organs. During the spring months it is open for those who desire a course embracing those refinements and minutiæ, which of necessity are omitted in the regular winter's work. Especial facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

THE OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. The first year student is required, in this Laboratory, to make himself familiar with the skeleton and the articulations, as a part of his instruction in practical anatomy.

THE PHYSIOLOGICAL LABORATORY is under the personal direction of the Professor of Physiology and the Demonstrator. It is furnished with every form of apparatus likely to be used by the practical physiologist. An elementary practical course in physiology, designed especially for first year students who are deficient in preliminary training in Biology, is continued throughout the Session; while every facility is afforded advanced students

Digitized by Google

and graduates pursuing special studies in that subject. The Laboratory is open throughout the year, except during July and August.

THE PATHOLOGICAL LABORATORY, under the direction of the Professor of General Pathology and Morbid Anatomy, and the Demonstrator of Pathological Histology, was opened in 1874, and attracts, from remote sections of the country, a large number of physicians and students who desire special preparation in Microscopic Technology, Normal and Pathological Histology, and Experimental Pathology. It is furnished with microscopes, and all appliances requisite for practical study and for original research.

This Laboratory is also supplied with a complete outfit for the investigation of Bacteria in their relation to infectious diseases, and for the study of the lower fungi.

Each student of the second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in Pathological Histology, in Mycology, and in the microscopy of urine.

Each student of the third year receives advanced practical instruction in Morbid Anatomy, and in the making of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, along with the microscopic sections, are features of this course.

The practical work, during the regular winter session, is obligatory on students of both the second and the third year.

Special instruction and guidance in original research are given by the demonstrators to advanced students.

The laboratory is open throughout the year, except during July and August.

THE PHARMACEUTICAL LABORATORY is in charge of the Professor of Materia Medica and Pharmacy and the Demonstrators of Pharmacy. It is furnished with tables and all necessary apparatus. In it the student learns not only the various pharmaceutical processes, but also that familiarity with drugs which can be acquired only by handling them.

THE LABORATORY OF EXPERIMENTAL THERAPEUTICS, under the direction of the Professor of Materia Medica and Therapeutics, is furnished with all apparatus and instruments necessary for the study of the physiological action of medicines.

THE DEPARTMENT OF PRACTICAL OBSTETRICS is under the care of the Professor of Obstetrics and the Demonstrator. It includes operations on the cadaver and with the manikin, while lying-in cases are given to advanced students.

THE STILLÉ MEDICAL LIBRARY, founded by Professor Alfred Stillé, now contains over four thousand volumes. During the Winter and Spring

Digitized by Google

Courses it is accessible to advanced students and graduates of the Medical Department under appropriate regulations.

THE LABORATORY BUILDING.

The first floor is arranged for the Operating Room or Infirmary of the Dental Department, and has the necessary waiting-rooms, etc., carefully adapted to the requirements of this department. The entrance is on Spruce Street.

The second and third floors are fitted up as chemical laboratories; on the second is the laboratory of General Chemistry, and on the third that of Medical Chemistry. In addition to the main room, on each story, there are four balance rooms, provided with instruments for attaining accuracy in Chemical research.

The fourth floor is occupied by the Dissecting Room.

CHEMICAL LABORATORIES.—The Working Laboratories for Practical Chemistry are under the supervision of the Professor of Chemistry and the Demonstrator, with assistants. Students of the First Year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his tests.

Students of the Second Year devote four hours per week to practical work in the Laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and complex mixtures.

DISSECTING ROOM.—In constructing the new Dissecting Room of the University, care was taken to provide everything that experience suggested as being necessary or desirable. The room is at the top of the Laboratory Building, and is one hundred and forty feet in length by forty feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. The tables have stone tops, which cannot absorb moisture and can be kept perfectly clean. There are numerous washstands and private closets for the use of each student. Cleanliness is rigidly enforced. The preservation of the cadaver has been so successfully accomplished as almost to do away with the dangers of dissecting wounds. Dissection is legalized in Pennsylvania.

Digitized by Google

The Room is open throughout the year except in July and August, under the superintendence of the Professor of Anatomy and the Demonstrators.

PRACTICAL SURGERY.—The application of bandages and dressings is taught to students in their First Year, while surgical operations on the cadaver are a part of the practical instruction to students of the Third Year, under the supervision of the Professor and Demonstrators of Surgery. Instruments, splints and bandages are supplied without expense to the student.

THE UNIVERSITY HOSPITAL.

The University Hospital, constructed according to the best established principles of hospital architecture, is provided with all the appliances pertaining to such institutions of the best class. It is adjacent to the new Medical Hall, and forms an integral portion of the Medical Department. In its various departments, during 1885, there were treated 8699 cases, representing almost all of the known medical, surgical and gynæcological affections. Owing to its situation within a very short distance of numerous railroads, the Hospital is pre-eminently the refuge of cases of severe injury and of acute surgery. Attendance on the Clinical Instruction given in its amphitheatres and its wards is a part of the daily duty of the students, and ample opportunities are afforded to the more advanced among them to gain a personal and practical acquaintance with Clinical Medicine, Surgery, Gynæcology and the Specialties. These subjects are taught by the several Clinical Professors.

The new wing in the University Hospital, for chronic diseases, especially of the heart and of the lungs, is completed and thereby unusually good opportunities are afforded for the study of these important affections. This wing has been erected by the liberality of Mr. Henry C. Gibson; and its hundred beds are rapidly being endowed by friends of the University. The Peter Hahn Ward, endowed by the late Dr. George B. Wood, has been opened for the admission of patients.

The resident physicians of the University Hospital are every year selected by competitive examination from among the graduating class of the University. The next examination will be held Tuesday, April 26th, 1887, at 12 M.

OTHER HOSPITALS AND HOSPITAL CLINICS.

In addition to the official clinical lectures and bedside instruction delivered at the University Hospital, medical students have the opportunity of attending clinical lectures in other Hospitals and in private classes formed for the special study of disease.

Close to the grounds of the University is the PHILADELPHIA HOSPITAL

Digitized by Google

with its thousand beds. Here are delivered twice a week Clinical Lectures on Medicine, Surgery, and the Diseases of Women and Children. Lectures on Clinical Medicine and Surgery are also delivered twice a week during the greater part of the year by the Medical Staff of the PENNSYLVANIA HOSPITAL. Instruction in Clinical Surgery and Children's Diseases is given, too, at the CHILDREN'S HOSPITAL. There are also weekly Clinics in Medicine and Surgery at the GERMAN HOSPITAL. To these institutions students are admitted without charge, except at the Pennsylvania Hospital, where a small fee is now required.

During the spring and summer *private* classes are also formed for Clinical Instruction, for which a moderate fee is charged.

Appointments of RESIDENT PHYSICIANS, amounting to twenty-five or more, are made annually in the different Hospitals of the city. With one or two exceptions these positions are now filled by *competitive examination of candidates.*

From the preceding summary it is evident that a prolonged residence in Philadelphia must be of the utmost value to the student, by enabling him to pursue a systematic course of study and to become practically familiar with the scientific methods of investigating disease, and with the principles and results of its treatment.

STILLÉ MEDICAL SOCIETY, H. C. WOOD MEDICAL SOCIETY AND WILLIAM PEPPER MEDICAL SOCIETY.

These Societies are composed of Second and Third year students. Their meetings are held once a week during the winter session for the reading and discussion of papers referring to the theory and practice of medicine.

PRIZES.

THE MEDICAL NEWS PRIZE of One Hundred Dollars will be awarded to the member of the Graduating Class of 1886–87 for the best Essay.

THE ALUMNI PRIZE of Fifty Dollars has been instituted by the SOCIETY OF THE ALUMNI of the Medical Department of the University.

MORBID ANATOMY PRIZE.—A prize of a Zentmayer's Microscope is annually awarded by the Professor of General Pathology and Morbid Anatomy for the best thesis on any subject connected with Pathology or Morbid Anatomy, illustrated by a set of not less than twelve microscopical preparations.

A PRIZE OF THIRTY DOLLARS is also awarded by the Demonstrator of Anatomy to the member of the Graduating Class who shall present the best record of the anomalies found in the anatomical rooms.

TWO PRIZES are awarded by the Demonstrator of Surgery for proficiency

Digitized by Google

in Operating and Bandaging. The first is a copy of Agnew's Surgery, the second a pocket-case of instruments.

The names of those to whom the prizes are awarded are announced at the Annual Commencement of the Medical Department.

☞ *The address of the Secretary is Medical Department of the University of Pennsylvania, Philadelphia, Penna. His office is in* MEDICAL HALL, *where all business is transacted.*

SOCIETY OF THE ALUMNI OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

The object of this Society is to sustain and advance the interest and influence of the Medical Department by the promotion of sentiments of general brotherhood and amity among the graduates, and by aiding in all efforts to elevate the standard of medical education and to extend the progress of medical science and art.

Any graduate in good standing may become a member by forwarding to the Treasurer the sum of *one dollar;* and thereafter the *annual contribution* shall be *one dollar.*

Every member receives a copy of the proceedings of the Society, and is notified of the Anniversary and Banquet, which take place on the day before Commencement Day.

It is urgently desired that as many of the Alumni of the Medical Department of the University of Pennsylvania as possible avail themselves of the opportunity to join the Society, as an increased membership will greatly strengthen the Society and thereby advance its objects.

OFFICERS FOR 1886.

President—ALFRED STILLÉ, M.D., LL.D.

Vice-Presidents—MEREDITH CLYMER, M.D.
W. S. W. RUSCHENBERGER, M.D.
THOMAS J. GALLAHER, M.D.
TRAILL GREEN, M.D.

Corresponding Secretary—THOMAS R. NEILSON, M.D., 346 South 15th St., Philadelphia.

Recording Secretary—H. R. WHARTON, M.D., 1495 Locust St., Philadelphia.

Treasurer—C. M. SELTZER, M.D, 608 North 17th St., Philadelphia.

Chairman of Executive Committee—S. D. RISLEY, M.D., 1722 Walnut St., Philadelphia.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence* and *Toxicology*
SAMUEL B. HOWELL, M.D., Professor of *Mineralogy* and *Geology*.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of *Botany*.
JOSEPH G. RICHARDSON, M.D., Professor of *Hygiene*.
JOSEPH LEIDY, M.D., LL.D., Professor of *Zoölogy* and *Comparative Anatomy*.

J. T. ROTHROCK, *Dean*.

MATRICULATES.

Aitken, H. Williamson,	West Chester, Pa.
Gill, Walter M.,	Allegheny City, Pa.
Hatch, John Leffingwell,	Rochester, N. Y.
Heisler, John Clement,	Minersville, Pa.
Landis, Eli Barr,	Lancaster, Pa.
Miller, Milo George,	Pittsburgh, Pa.
Stahl, B. Franklin,	Philadelphia, Pa.
Warwick, Hill S., M.D.,	Jersey City, N. J.

Total, 8.

The Auxiliary Faculty of Medicine supplements the customary winter course of medical instruction, by lectures on collateral branches of Science essential to the thorough education of the physician. The course is essentially post-graduate. There can be no matriculation until the student has entered upon his third year of medical study. His second year in this department should be taken in connection with the fourth year of medical instruction for which the University now provides.

The session for 1886–87 will begin on Friday, October 1st, and continue until the early part of May.

The matriculation book will be closed after November 1st, except to such students as show the Dean good reasons for longer indulgence.

Digitized by Google

FEES.

The lectures are free to the medical students, and medical graduates, of this University. Other matriculates pay fifteen dollars for each professor's course, or thirty-five dollars for all the courses. The graduation fee is ten dollars.

DEGREES.

This Faculty no longer recommends students for the degree of Doctor of Philosophy (Ph.D.); but a graduate in Medicine of this University, or of other Medical Schools on its *ad eundem* list, who has attended two full courses of instruction in this Auxiliary Department, has presented an *original thesis* on one of the subjects taught, and has passed a satisfactory examination, will receive the degree of Bachelor of Science (B.S.), on complying with the following conditions:

(1) When applying for examination the candidate must exhibit his medical diploma to the Dean, and show that he has paid all University dues.

(2) The thesis must be presented to the Dean, and the graduation fee be paid by the 15th day of May.

Candidates must be present at Commencement unless excused by the Faculty.

SPECIAL STUDENTS.

The lectures and laboratories of this Department are open, also, to those not engaged in the Study of Medicine. Admission may be obtained from the Dean, either to the whole course of Lectures, or to Lectures on a single branch. These students receive no degrees, though the Faculty may give certificates of attendance.

PRIZES.

(1) The GEORGE B. WOOD PRIZE, founded by the Alumni Association of the Auxiliary Department of Medicine, is bestowed annually upon the candidate who passes the best examination, and presents the best original thesis on an experimental subject, satisfactory to the Faculty.

(2.) Messrs. R. & J. BECK, opticians, through their manager, W. H. Walmsley, offer at the coming session one of their new "Ideal" microscopes, complete, of the value of seventy-five dollars, to the author of the best and most practical paper illustrative of any Department of Natural History, preference being given to Human Anatomy and Botany, worked out by the aid of the microscope, and accompanied by prepared objects or drawings.

Digitized by Google

MUSEUM.

The Museum of the Auxiliary Department of Medicine contains three thousand mineral specimens systematically arranged; a collection of rocks, fossils and casts, arranged according to their geological succession; a valuable philosophical apparatus; a growing collection of specimens of Comparative Anatomy and Zoölogy; chemical preparations and apparatus illustrative of Toxicology; diagrams, etc. These collections are arranged in the rooms of the Faculty.

COURSE OF STUDY.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.—Subjects of legal medicine on which the physician may be called upon to give evidence in a court of justice:—

Signs of Death; Personal identity (*identification of the living and the dead*); Feigned Diseases; Violent Deaths (*homicidal* and *suicidal*) from (a) *wounds;* (b) *hanging;* (c) *strangling;* (d) *suffocation;* (e) *drowning;* (f) *heat;* (g) *cold;* (h) *starvation;* (i) *lightning;* (k) *poisoning.*

Infanticide and criminal abortion; Signs of Pregnancy and of Delivery; Legitimacy; Rape; Survivorship.

The Jurisprudence of Insanity (*civil* and *criminal responsibility; feigned insanity; rights of the insane; plea of insanity as a bar to judicial punishment*).

The Legal Rights and Liabilities of Physicians; Medical Experts—their rights and compensations.

Life Insurance in its medico-legal relations.

Medical Malpractice.

Poisoning, with special reference to *testing;* modes of procedure in order to determine the presence of poisons in cases of homicide and suicide.

MINERALOGY.—First Year: Instruction by Lectures and Text-book study, giving leading facts and principles as a branch of general education, and also preparing for practical application to Geology. This includes crystallography, physical and chemical properties of minerals, classification and description of all the leading species, with a complete collection to illustrate these teachings. In the Laboratory the student learns blowpipe analysis to determine minerals. Use of the spectroscope is taught. The examination is both written and oral, with practical determinations.

GEOLOGY.—Second Year: Lectures and practical work. This includes lithological classification, stratification or bedding, fossiliferous and unfossiliferous rocks, origin of rocks, denuding agents, dissolved matter extracted by the agency of animals and plants, derivative rocks and their relations to the history of the globe, present positions of rocks, present interior and exterior conditions of the earth, causes of upheaval and contortion, origin of heat required for volcanic energy and metamorphism, changes of climate, mineral springs, geographical distribution of disease realms, soils in relation to malaria, drainage basins and

Digitized by Google

lines, permeability of rocks as related to discharge of rivers, character of river water as depending upon chemical composition of rocks, and outlines of historical geology. The practical work in the laboratory includes plotting from field notes, location of outcrops, construction of sections, reports on districts visited by students, description of strata, and determination of rocks and fossils.

BOTANY.—First Year: Instruction is by Lectures upon structural and physiological botany; and also as time permits, upon properties of plants. Second Year: Instruction by laboratory exercises in vegetable histology and in analytical botany. Such students as are far enough advanced can also receive instruction in methods of study and in life-histories of the lower forms of plant life.

There is an examination at the end of each year.

Under proper restriction a large herbarium is available to advanced students, for purpose of critical comparison of plants.

HYGIENE.—Sanitary science, especially in the direction of Preventive Medicine, has advanced so rapidly during the past few years, that in this brief course only the more important subjects can be treated of in detail. Particular attention is directed to the practical application of sanitary knowledge, in accordance with the standard of efficient requirement in this branch justly demanded by the Illinois and other State Boards of Health.

1. Nature, causes, mode of propagation, and prophylaxis of preventable diseases—heredity and other modifying influences which affect their development—avoidance or control of maladies by quarantine, disinfection, isolation, etc. 2. Special prophylactic measures and hygienic management of cholera, typhoid fever, small-pox, glanders, trichiniasis, and the disturbances of health produced by parasites. 3. Analysis of air; sanitary meteorology; heating and ventilation; examination of drinking water; drainage and sewerage. 4. Food and drink as conditioning *all* physical and mental manifestations of vitality; impurities, deteriorations and adulterations of food,—their effects upon the human organism,—means of detecting their existence, and obviating their injurious action. 5. Principles of hospital construction; military, naval, school, industrial and personal hygiene.

COMPARATIVE ANATOMY AND ZOOLOGY.—1. An outline of the classes of animals. 2. A succinct account of their anatomy and embryology. 3. Explanation of "varieties" of human anatomy, and the proper method of studying malformations. 4. A description of human parasites. 5. An account of the more important sources of those articles of the materia medica which are derived from the animal kingdom.

The principal text-books used are:—

Taylor's *Medical Jurisprudence* (American edition by Reese).
Reese's *Manual of Toxicology.*
Reese's *Medical Jurisprudence and Toxicology.*
Dana's *System of Mineralogy.*
Elderhorst's *Manual of Qualitative Blowpipe Analysis.*
Dana's *Manual of Geology.*
Ganot's *Éléments de Physique*, translated by Atkinson.

Digitized by Google

Gray's *Text-Book of Botany*, Vols. 1 and 2.
Gray's *Manual of Botany*.
Parkes' *Manual of Hygiene*.

Works of reference:—

Wharton and Stillé's *Medical Jurisprudence*.
Taylor's *Medical Jurisprudence*.
Tidy's *Legal Medicine*.
Sach's *Text-Book of Botany*.
Le Maout and Decaisne's *General System of Botany, Descriptive and Analytical*.
Cooke and Berkely on *Fungi*.
Wilson's *Manual of Hygiene*.
Buck's *Hygiene and Public Health*.
Pavy or Chambers on *Diet*.
Mivart's *Elements of Anatomy*.
Nicholson's *Manual of Zoology*.
Gegenbaur's *Elements of Comparative Anatomy*.
Balfour's *Comparative Embryology*.

Digitized by Google

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS.

RICHARD WOOD, PRESIDENT.
WM. F. NORRIS, M.D., VICE-PRESIDENT.
S. S. STRYKER, M.D., SECRETARY.
WHARTON BARKER, TREASURER.

WM. PEPPER, M.D., LL.D., PROVOST.

ON THE PART OF THE CONTRIBUTORS TO ENDOWMENT FUND.

ISAIAH V. WILLIAMSON, JOHN WANAMAKER,
SAMUEL ASHHURST, M.D., W. F. NORRIS, M.D.,
THOMAS DOLAN, JAMES B. LEONARD,
WM. C. ALLISON.

ON THE PART OF THE BOARD OF TRUSTEES.

RICHARD WOOD, G. D. BOARDMAN, D.D., LL.D.,
JAS. H. HUTCHINSON, M.D., WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.

ON THE PART OF THE FACULTY.

JOSEPH LEIDY, M.D., LL.D., JOHN ASHHURST, JR., M.D.,
THEODORE G. WORMLEY, M.D., LL.D.

ON THE PART OF THE ALUMNI.

HORACE Y. EVANS, M.D., RICHARD A. CLEEMANN, M.D.,
SAMUEL S. STRYKER, M.D.

CHAIRMEN OF STANDING COMMITTEES.

ON FINANCE: JOHN WANAMAKER.
ON PROPERTY AND REPAIRS: J. H. HUTCHINSON, M.D.
ON SUPPLIES: HORACE Y. EVANS, M.D.
ON LIBRARY AND MUSEUM: JOHN ASHHURST, JR., M.D.

The *Medical Staff* and *Officers* of the Hospital are given on page 26.

Digitized by Google

The UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between 34th and 36th Streets, and Spruce and Pine Streets, given by the City of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction in 1874. In 1882, a new wing was added through the liberality of Mr. Henry G. Gibson for patients suffering from Chronic Diseases.

The MAIN BUILDING, besides the offices and the rooms of the officers, has a large clinical Amphitheatre, which will seat six hundred students, and a smaller one for one hundred and fifty. It also has ten rooms for private patients. The wing adjoining has five wards, with a capacity of one hundred and ten patients, and four private rooms. The wing for Chronic Diseases has room for sixty-two patients in its six wards. There is therefore full accommodation for one hundred and eighty-six patients. In the basement are surgical and medical dispensaries, and nine special dispensaries for out-door patients. In connection with the Orthopædic Dispensary is a work-shop, in which braces and other appliances are made.

The hallways are well-lighted and spacious, and can be used as wards, should there be any sudden demand which the capacity of the regular wards could not meet.

The Hospital is also well adapted to purposes of teaching; a large proportion of the instruction given to the students in the Medical School is given here, as will be seen by reference to the rosters.

In 1884, the fourteen hundred patients treated in the Hospital, and the seven thousand three hundred out-patients in the Dispensaries, furnished ample material for Clinical Instruction.

All cases of accident occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night. An ambulance will be sent for them, if notice is given by telephone or messenger.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is $7.00 a week; in the private rooms, of which there are fourteen, the prices range from $12.00 to $25.00 a week. The friends of the patients can be accommodated in the Hospital, under certain circumstances, but it is better for them to board in the neighborhood, where rates range from $4.50 per week upwards.

No patient with acute veneral disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon. There are special departments for mania-à-potu patients.

Digitized by Google

Visitors are admitted to see patients in the private rooms at all times.

Visitors are admitted to the wards on week-days between 2 and 4 P. M. Under no circumstances are they admitted on Sunday, except in the case of near relatives of patients whose condition is very critical.

There are elected annually from the graduating class of the Medical School three Resident Physicians, who come on day for one year at intervals of four months.

There were 1098 cases treated in the hospital, and 7149 in the dispensaries during the year 1885. Of the hospital cases there were:

Left over from 1884,	96	
New entries,	1002	
		1098
Pay patients,	330	
Free "	476	
Recent accidents,	292	
		1098

CASES TREATED IN DISPENSARIES.

	Cases.	Visits.
Surgical,	1152	3798
Medical,	1729	6104
Eye,	959	
Nervous,	360	1275
Throat and Nose,	808	4429
Gynæcological,	521	1191
Skin,	390	1332
Venereal,	379	1617
Children's,	261	
Orthopædic,	203	
Ear,	387	2496
	7149	

An Annual Report of the Hospital is published, giving minute statistics of the year. Copies can be had on application to the Superintendent.

Digitized by Google

DEPARTMENT OF DENTISTRY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
CHARLES J. ESSIG, M.D., D.D.S., Professor of *Mechanical Dentistry* and *Metallurgy*.
EDWIN T. DARBY, M.D., D.D.S., Professor of *Operative Dentistry* and *Dental Histology*.
JAMES TRUMAN, D.D.S., Professor of *Dental Pathology, Therapeutics* and *Materia Medica*.—SECRETARY.
JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*..
THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry*.
EDWARD T. REICHERT, M.D., Professor of *Physiology*.

ROBERT HUEY, D.D.S., Lecturer on *Operative Dentistry*.
LOUIS JACK, D.D.S., Lecturer on *Operative Dentistry*.

CLINICAL INSTRUCTORS.

DR. C. S. BECK,
DR. GEO. W. KLUMP,
DR. W. G. A. BONWILL,
DR. W. R. MILLARD,
DR. R. R. UNDERWOOD,
DR. E. H. NEALL,
DR. H. C. REGISTER,
DR. J. A. WARDELL,
DR. J. A. WOODWARD,
DR. H. C. LONGNECKER.

DEMONSTRATORS.

WM. DIEHL, D.D.S., Demonstrator of *Operative Dentistry*.
JOSEPH W. NOBLE, D.D.S., Demonstrator of *Mechanical Dentistry*.
J. JUDSON EDWARDS, D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.
GEORGE G. MILLIKEN, D.D.S., Assistant Demonstrator of *Operative Dentistry*.
JAMES E. LODER, D.D.S., Assistant Demonstrator of *Operative Dentistry*.
HARRY B. McFADDEN, D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.
JOHN MARSHALL, M.D., NAT.SC.D., Demonstrator of *Practical Chemistry*.
JOHN B. DEAVER, M.D., Demonstrator of *Anatomy*.

Digitized by Google

MATRICULATES.

Second Year.

Abarca, Filadelfo,	Rivas, Nicaragua,	University.
Aguilar, Arturo,	Leon, Nicaragua,	University.
Amend, Frederick W., Jr.,	Philadelphia,	University.
Arnold, Wm. Frank,	Rochester, N. Y.,	University.
Belisario, John B.,	Sydney, Australia,	J. Belisario.
Bentzen, Michael H.,	Bergen, Norway,	University.
Bohn, Henry W.,	Robesonia,	E. Slegel.
Bricker, Wm. Henry (M.D.),	Philadelphia,	G. G. Milliken.
Calves, Antonio D.,	Havana, Cuba,	University.
Codman, Charles A. E.,	Philadelphia,	University.
Darrell, Oliver D.,	Washington, D. C.,	H. B. Noble, Jr.
Deming, Fay H.,	Sheldon, Vt.,	University.
Despecher, Felix J.,	Orsay, France,	University.
Doherty, R. Peel,	Kingston, N. B.,	W. W. Doherty.
Dunn, Thomas J.,	Philadelphia,	University.
Duthiers, George L.,	Port-au-Prince, Hayti,	University.
Elliott, Walter V.,	Mansfield,	University.
Fernandez, y Lombard, Emeterio,	Jovellanos, Cuba,	University.
Frick, Theodore,	Zürich, Switzerland,	P. A. Kölliker.
Fuller, Dwight B., Jr.,	Philadelphia,	G. G. Milliken.
Garesche, Arthur F.,	Cardenas, Cuba,	University.
Hahn, William P.,	Philadelphia,	University.
Hall, Carroll,	Philadelphia,	University.
Herbein, Isaac W.,	Sinking Spring,	H. J. Herbein.
Hill, William W.,	Washington, Ga.,	J. B. Ficklen.
Howe, John B.,	Ithaca, N. Y.,	F. S. Howe.
Hurlock, John,	Church Hill, Md.,	University.
Johnson, W. Howard,	Milton,	U. G. Beck.
Jones, William L., Jr.,	Philadelphia,	University.
Keim, Milton N.,	Philadelphia,	Milton Keim.
Merglekamp, Guillermo,	Guayaquil, Ecuador,	University.
Milliken, James A.,	Philadelphia,	G. G. Milliken and R. H. Nones.
O'Malley, John F.,	Wilkes-Barre,	J. McDougall.
Outcault, Charles W.,	Lancaster, O.,	M. Palmiter.
Pancoast, Samuel A.,	Ashtabula, O.,	University.
Paris, Louis J.,	Philadelphia,	University.
Paxson, Alfred,	West Chester,	G. G. Cardwell.
Payne, Ralph G.,	Cattaraugus, N. Y.,	C. J. Ellis.
Pérez, Eduardo A.,	Guayaquil, Ecuador,	University.
Powel, Milton,	Philadelphia,	University.
Randall, John W.,	Norwich, N. Y.,	A. E. Bradley.
Reap, Joseph C.,	Pittston,	J. McDougall.
Rehfuss, William F.,	Philadelphia,	Thomas Robson.
Robson, Thomas C.,	Philadelphia,	Thomas Robson.
Seip, Howard S. (A.B.),	Allentown,	University.
Shell, J. Kinzer (M.D.),	Philadelphia,	L. H. Graves.
Swing, R. Hamill D.,	Coatesville,	University.

Digitized by Google

Tees, Ambler, Jr.,	Philadelphia,	Ambler Tees.
Turner, Wm. Jarvie (M.D.),	Brooklyn, N. Y.,	Wm. Jarvie.
Uhler, Orandus H.,	Easton,	S. P. Uhler.
Wall, Richard J.,	Hummelstown,	J. B. Crist.
White, Joseph W.,	Philadelphia,	University.
Zayas, Fernando A. de,	Matanzas, Cuba.	University.

Students of the Second Year, 53.

FIRST YEAR.

Ayres, Percy C.,	Philadelphia,	University.
Baker, Boyd H.,	Hughesville,	Wm. L. Winner.
Baumgardner, Ira G.,	Philadelphia,	University.
Beck, Harry M.,	Wilkes-Barre,	C. S. Beck.
Belt, J. Ferris,	Wilmington, Del.,	University.
Bennett, Arthur J.,	Sydney, Australia,	John Spencer.
Bower, Elmer E.,	Coatesville,	W. H. Shannon.
Brown, Frederick W.,	New Haven, Conn.,	Fuller & Caroli.
Bryce, James H. (M.A.),	Stirling, Scotland,	University.
Burke, John J.,	Wilmot,	University.
Channell, William C.,	Montezuma, Ia.,	W. P. Channell.
Cornelius, George T.,	Philadelphia,	Joseph Head.
Daboll, Louis B.,	Buffalo, N.Y.,	G. C. Daboll.
Dunwoody, J. Edward,	Philadelphia,	University.
Fenn, George L.,	Bridgeport, Conn.,	University.
Fenn, Henry H.,	Bridgeport, Conn.,	L. E. Sage.
Fuller, Thomas B.,	Binghamton, N.Y.,	M. H. Fish.
Gardner, Peter W.,	Milwaukee, Wisc.,	University.
Georges, L. A. Joseph,	Port-au-Prince, Hayti,	F. A. Piron.
Gibbons, R. Hornsby,	Brighton, England,	S. C. Gibbons.
Graff, Mark W.,	Richmond, Ind.,	University
Green, Albert B.,	Philadelphia,	George S. Todd.
Heyde, Hans von der,	Constantinople, Turkey,	Hans von der Heyde.
Holder, Thomas,	Hillsboro, N. H.,	S. O. Bowers.
Hopkins, Richard S.,	Cheyenne, Wyoming Territory,	Rees Williams.
Howard, Charles P.,	Champaign, Ills.,	C. M. Shreve.
Jones, J. Benjamin,	Summit Hill,	University.
Kuni, Harry W.,	Philadelphia,	University.
Ladd, Charles F.,	Whitehall, Ills.,	J. M. Lucas.
Link, Edward G.,	Rochester, N. Y.,	Wanzer & Davis.
McCanna, Horace,	Atglen,	C. J. Reese.
Manship, John F.,	Milton, Del.,	University.
Mayer, William J.,	New Haven, Conn.,	Nettleton & Bradley.
Meisburger, Louis C. J.,	Buffalo, N. Y.,	O. Luce.
Miro, José Luis,	Havana, Cuba,	University.
Nuñez, Emilio,	Sagua, Cuba,	University.
O'Bourke, John M.,	Trinidad, Cuba,	University.
Paiste, James L.,	West Chester,	J. E. Harlan.
Place, Eugene H.,	Freeport, Ills.,	Kingsley, Allen & Sunderland.

Digitized by Google

Ramsden, Harry M.,	Frankford,	John Ramsden.
Rathbun, Chauncey M.,	Dunkirk, N. Y.,	B. Rathbun.
Reap, Edward A.,	Pittston,	University.
Rue, Samuel F.,	Hightstown, N. J.,	Geo. E. Titus.
Ruiz, Jesús,	Guayata, U. S. of Colombia,	University.
Segar, Albertus V.,	Westerly, R. I.,	Lewis & Spicer.
Smith, Charles E.,	Nashua, N. H.,	L. F. Locke.
Streeter, Robert L.,	Rochester, N. Y.,	University.
Sullivan, George A.,	Lancaster,	University.
Tees, Louis F.,	Philadelphia,	Ambler Tees.
Tenny, Robert C.,	Eaton, N. Y.,	University.
Thompson, Lamar I.,	Rochester, N. Y.,	H. S. Miller.
Trogdon, Rosecrans,	Paris, Ills.,	Ball & Whiteside.
Vansant, Wilbur M.,	Philadelphia,	University.
Weinberg, Nathan,	St. John, Kan.,	C. A. & S. J. Baird.
Wheeler, W. Frisbie,	Spencer, Mass.,	C. P. Barton.
White, Edward A.,	Philadelphia,	H. C. Register.

Students of the First Year, 56.

SPECIAL STUDENTS.

Dumas, Victor (D.D.S),	Santiago, Cuba,	University.
Beers, W. George (L.D.S.),	Montreal, Canada,	McGill University.

Students of the Second Year	53
Students of the First Year	56
Special Students	2
Total	111

SUMMARY.

Australia	2	Illinois	4	Norway	1
Canada	1	Indiana	1	Ohio	2
Connecticut	4	Iowa	1	Pennsylvania	47
Cuba	8	Kansas	1	Rhode Island	1
Delaware	2	Maryland	1	Scotland	1
District of Columbia	1	Massachusetts	1	Switzerland	1
Ecuador	2	New Brunswick	1	Turkey	1
England	1	New Hampshire	2	U. S. of Colombia	1
France	1	New Jersey	1	Vermont	1
Georgia	1	New York	13	Wisconsin	1
Hayti	2	Nicaragua	2	Wyoming Territory	1
				Total	111

COURSE OF STUDY.

The Course extends over two years, and in each year there are two Sessions, the Winter and the Spring. By this arrangement, students are spared

Digitized by Google

the necessity of securing a preceptor during their stay in the city; the Faculty deem attendance during the spring and summer months equivalent to private instruction. *Such attendance, however, is not to be considered in any way a substitute for the Winter Session.*

During the Winter Session the following is the arrangement of studies:

FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.				
10 A.M.	Mechanical Clinic.			Mechanical Clinic.	Mechanical Clinic.	
11 A.M.		Chemical Laboratory.	Chemical Laboratory.			
12 M.						Dental Materia Medica.
1 P.M.		Operative Clinic.		Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.		Operative Clinic.			
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
6½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology and Therapeutics.	

The curriculum of the first year is identical for Medical and Dental students as far as Anatomy, Chemistry, and Physiology are concerned.

SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.
10 A.M.						
11 A.M.						
12 M.			Univ. Hosp. Clinics.			
1 P.M.		Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.					
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
6½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology and Therapeutics.	

Digitized by Google

In order to facilitate work in the practical departments, and to give full employment to the student, the morning hours of the first year are devoted equally to dental and chemical laboratory work.

During the second year the student has the entire forenoon of each day for practical dental work. Ample opportunity is afforded for practice in operative and mechanical dentistry. In the latter branch the students of the Junior year are divided into sections, thus devoting the morning hours to practice in the operative and mechanical rooms.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth, their component tissues, a full description of the materials and instruments used in operative dentistry, a thorough elucidation of all dental operations, such as filling, extracting, regulating, the pathological relations of the teeth to the other parts of the system, and a minute description of all diseases related to dental surgery, or of interest to the dentist. The methods taught are demonstrated in clinics.

The instruction in MECHANICAL DENTISTRY AND DENTAL METALLURGY embraces the proper fitting up of a dental laboratory; the use of tools; the melting, refining, alloying and working of metals and alloys used by the dentist; the chemical and physical properties of materials pertaining to ceramic dentistry, their preparation, and the most approved formulas for compounding bodies and enamels for the manufacture of block teeth and continuous gum work; the history and properties of all substances used in making artificial dentures; as well as the mechanical treatment of cleft palate, including the several methods of constructing obturators for such cases, whether congenital or acquired. The lectures in this department also include every approved mechanical means of correcting irregularities of the teeth, and are amply illustrated by specimens, models, diagrams, and practical application in the laboratory, under the supervision of accomplished mechanical dentists. Special attention will be directed to the higher branches of plate work, the continuous gum process, and carving teeth.

Every student is required to furnish his own bench tools for metal and rubber work, and will be provided with a place in which they can be locked when not in use.

The lectures in CHEMISTRY embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds, and of the fundamental principles of organic chemistry, including the classification of organic

Digitized by Google

compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

The course in practical chemistry in the laboratory includes exercises in chemical manipulation, the study of the chemical properties of the principal metals, and the reactions of acids and their combinations, and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds which are of interest to practitioners in all branches of medicine. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the direction of demonstrators, as well as to exhibit by formulas, on paper, all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the departments of medicine, including dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, large and well-executed models, and drawings.

The course on PHYSIOLOGY includes lectures, with demonstrations, on the entire human physiology and on physiological chemistry. The study of the physiology of each organ is preceded by a full consideration of its histology. The course is amply illustrated by appropriate diagrams, chemico-physiological experiments, and vivisections.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects taught. Dentition, and its possible pathological results, receives careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable, the character—normal and abnormal—of the oral secretions, and the direct and remote relations which the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes by which to secure a return to normal conditions are minutely detailed.

MATERIA MEDICA will be taught with special reference to the character and value of those remedies that have any bearing upon dental therapeutics.

CLINICAL INSTRUCTION.

Four hours daily (except Saturday) are spent in actual practice under the supervision of the Demonstrators. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use. In the operating room, wires are arranged to a number of the chairs for the use of electric pluggers.

Digitized by Google

INFIRMARY AND LABORATORY.

The Infirmary and Laboratory are open to the students for practice every day during the week excepting Saturday afternoon, this being reserved for Clinics that may be given by members of the faculty or instructors.

THE STILLÉ MEDICAL LIBRARY.

This library, founded by Professor Alfred Stillé, for the purpose of promoting scientific research and literary culture, contains upwards of four thousand volumes. During the Winter and Spring Sessions it is open to students and graduates of the Dental Department under appropriate regulations.

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, and annually augmented, is unequalled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy, a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc., and an extensive collection of models, which are used in illustrating the course of lectures. It is open every Wednesday and Saturday from 9 A.M. to 12 M., throughout the sessions. The matriculation fee in this Department confers admission to the Museum.

SESSIONS.

The *Spring Session*, 1887, begins on Tuesday, May 3rd, and ends the 15th of June. The work of this session is entirely practical; no lectures are delivered.

The *Introductory Session* begins on Monday, September 19th, and is free to those who enter for the Winter Session.

The *Winter Session*, 1887–88, begins on Monday, October 3rd, 1887, and ends on May 1st, 1888.

EXAMINATIONS.

At the close of the first year, examinations in Chemistry and Materia Medica are held, which, if the student fail to pass, a second examination is afforded him at the beginning of the next Winter Session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school

Digitized by Google

recognized by the Faculty, will be admitted to the graduating class without examination, upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

DEGREES.

At the close of the second year, after passing satisfactorily all examinations, the student will receive the degree of Doctor of Dental Surgery (D.D.S.), under the following regulations:

I. The candidate must be of age and of good moral character, and must have attended two full winter sessions—the second, in this institution.

II. He must have dissected at least two parts; and have performed thoroughly and to the satisfaction of the Professor of Operative Dentistry all the usual dental operations; and must undertake at least one artificial case, and bring it completed, with the patient, to the Professor of Mechanical Dentistry, thirty days before the close of the term; and must prepare for presentation to the Professor of Mechanical Dentistry, before the 1st of April, a specimen case to be deposited in the College collection. The operations, as well as the work on the artificial case, must be performed at the College building.

III. He must be present at Commencement, unless excused by the Faculty.

TEXT-BOOKS AND WORKS OF REFERENCE.

On Operative Dentistry and Dental Histology: Harris's *Principles and Practice;* Tomes's *Dental Surgery;* Taft's *Operative Dentistry;* Tomes's *Dental Anatomy.*

On Mechanical Dentistry and Metallurgy: Richardson's *Mechanical Dentistry;* Wildman's *Instruction in Vulcanite Work;* Kingley's *Oral Deformities;* Essig's *Dental Metallurgy.*

On Anatomy: Leidy's *Elementary Treatise on Human Anatomy;* Gray's *Anatomy;* Stricker's *Manual of Histology.*

Digitized by Google

Dental Follicle: Legros and Magitot, translated by M. S. Dean.

On Chemistry: Fownes's or Wurtz's *Chemistry;* Wormley's *Micro-Chemistry of Poisons;* Muter's *Analytical Chemistry.*

On Physiology: Foster's *Physiology* with Frey's *Compendium of Histology;* Tyson's *Cell Doctrine;* Yeo's *Physiology.*

On Materia Medica: H. C. Wood's *Therapeutics;* Geo. B. Wood's *Therapeutics;* Wood and Bache's *Dispensatory.*

On Surgery: Agnew's *Surgery;* Ashhurst's *Surgery;* Billroth's *Surgical Pathology.*

For Fees, Expenses, Boarding, etc., see p. 163.

Third year medical students who have graduated in the Department of Dentistry are entitled to the use of the Operative Clinics and the Dental Laboratory free of charge.

Further information may be obtained from

JAMES TRUMAN, *Secretary,*
3249 Chestnut Street, Philadelphia, Pa.

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

RUSH SHIPPEN HUIDEKOPER, M.D., Veterinarian *Alfort*, DEAN OF THE FACULTY, Professor of *Internal Pathology* and *Zootechnics*, and *pro tempore* Professor of *Veterinary Anatomy*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Zoology*.

JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy*.

HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica*, *Pharmacy* and *General Therapeutics*.

THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry* and *Toxicology*.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.

ROBERT MEADE SMITH, M.D., Professor of *Comparative Physiology*.

WILLIAM L. ZUILL, M.D., D.V.S., Professor of *Surgical Pathology* and *Obstetrics*.

DEMONSTRATORS.

HENRY F. FORMAD, M.D., Demonstrator of *Pathology* and *Morbid Anatomy*.

THOS. B. ROGERS, D.V.S., Demonstrator of *Veterinary Anatomy*.

JOHN MARSHALL, M.D., NAT. SC. D. (Tübingen), Demonstrator of *Practical Chemistry*.

ALEXANDER GLASS, V.S., Demonstrator of *Therapeutics*, *Materia Medica* and *Pharmacy*.

GARRETT EDWARDS, *Farrier*, Demonstrator of *Forging* and *Horseshoeing*.

R. S. HUIDEKOPER, M.D., *Veterinarian, Dean of the Faculty, 36th and Pine Streets, Philadelphia, Pa.*

Digitized by Google

MATRICULATES, 1886–87.

Third Year.

Birch, William A.,	Philadelphia.
Cullen, Charles M.,	Philadelphia.
Eves, Hiram P.,	Lima.
Formad, Robert,	Philadelphia.
Harger, Simon,	Hecktown.
Hickman, Richard W.,	Bustleton.
Lintz, Charles,	Holmesburg.
Marlin, Edgar,	Philadelphia.
Montgomery, William B.,	Chestnut Hill.
Vandegrift, John F.,	Langhorne.
Webster, Richard G.,	Media.
Williams, Charles,	Fellowship, N. J.

Second Year.

Bachman, B. Frank,	Strasburg.
Balzer, Helmuth C.,	Meriden, Conn.
Boon, George M.,	Philadelphia.
Breisacher, Leo, Jr.,	Detroit, Mich.
Burns, Joseph M.,	West Chester.
Davis, Fred. H., Ph.G.,	Philadelphia.
Earley, Thomas B.,	Philadelphia.
Felton, Howard B.,	Olney.
Flower, Richard,	Ashbourne.
Garrett, Caspar,	Lansdowne.
Gatchel, Enoch M.,	West Chester.
Hartman, Guldin R.,	Philadelphia.
Lincoln, William R.,	Philadelphia.
Lusson, Louis Olry,	Philadelphia.
Maurise, Antoni,	Philadelphia.
Reefer, Leon. N.,	Meadville.
Ridge, William Hodgson,	Trevose, Pa.
Rush, John S.,	Concordville.
Schreiber, Albert F.,	Philadelphia.
Tintsman, John Z.,	Philadelphia.
Werntz, William B.,	Philadelphia.

First Year.

Baer, Benjamin S. J.,	Mount Joy.
Birch, Frank K.,	Philadelphia.
Botto, Joseph,	Philadelphia.
Harker, Frank H.,	Wrightstown, N. J.
Killbride, Thomas J.,	Philadelphia.
Knight, Nelson D.,	Lansdale.
Mackie, Frank C.,	Fair Hill, Md.
Magill, Chalkley H.,	Philadelphia.
Mattson, William H.,	Ward, Pa.
McCann, James (3d),	Philadelphia.
McKeever, Arthur,	Philadelphia.
McNeil, James C.,	Pittsburgh.
Smith, Frank L.,	Philadelphia.
Smith, George R.,	Milford, N. J.
Willard, Samuel B.,	Yardley, Pa.

Digitized by Google

SPECIAL STUDENTS.

Bonnaffon, Samuel Ashton, Philadelphia.

TOTAL.

Students of the Third Year	12
Students of the Second Year	21
Students of the First Year	15
Special Students	1
	49

THIS DEPARTMENT provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its courses extend from the first elements of Medicine to the latest researches in Veterinary Science at home and abroad. At every step the student is drilled under the personal guidance of professors in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining, at every step, Theory and Practice. It is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of veterinary pathology—problems which, owing to the lack of communication between the physician and the patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

The buildings are erected in what is to be the Botanical Garden of the University, and, with a street frontage of over 600 feet, consist of a spacious Amphitheatre, Museum, Dissecting Room, Histological and Botanical Laboratory, Hospital, with hot and cold and steam baths for horses, Blacksmith Shop with eight forges, Pharmaceutical Laboratory, etc., etc. The floors are laid in cement, with the most approved drainage. The Hospital is capable of accommodating over fifty horses, dogs and other animals.

ADMISSIONS.

Candidates for admission are required: *First*, to write an essay (not exceeding a page of foolscap), which may serve as a test in orthography and grammar; *Second*, to pass an examination in Elementary Physics (Part I. of Fownes's *Chemistry*). Candidates who have either received a collegiate degree, or passed the matriculate examination of a recognized college, or who have a certificate covering the required subjects from a recognized Normal or High School, or a duly organized County Medical Society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania—may enter without examination.

INSTRUCTION.

The Course of Instruction extends over three years, with one session

Digitized by Google

from the first of October to the last of June in each year. The following are the studies:

THE FIRST YEAR.—*Chemistry, Materia Medica and Pharmacy, Physiology, Histology, Botany, Zoology, Veterinary Anatomy and Forging.*

SECOND YEAR.—*Medical Chemistry, Physiology, Therapeutics, General Pathology and Morbid Anatomy, Veterinary Anatomy, Surgical Pathology, Internal Pathology and the Contagious Diseases, Botany, Zoology, and Practical Farriery.*

THIRD YEAR.—*Therapeutics, General Pathology and Morbid Anatomy, Surgical Pathology and Operative Surgery, Internal Pathology and the Contagious Diseases, Sanitary Police Obstetrics and Zootechnics.*

In the second year the student will attend clinics, and serve as aid in the hospital: in the third year he will be placed in charge of sick animals, and be required to prepare clinical reports and make autopsies. He will also make regular visits to breeding and dairy farms and to slaughter-houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher meat.

CHEMISTRY.

CHEMICAL LABORATORIES.—The working laboratories for Practical Chemistry are in a special laboratory building, and are under the supervision of the Professor of Chemistry and the Demonstrator, with assistants. Students of the first year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance in veterinary medicine. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his work.

Students of the second year devote four hours per week to practical work in the laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and from complex mixtures.

MATERIA MEDICA AND PHARMACY.

Materia Medica and Pharmacy are taught in a series of about sixty-four lectures and practical demonstrations by the Veterinary Assistant of the Professor of Therapeutics. This course includes the study of all the

Digitized by Google

drugs and preparations in the U. S. Pharmacopœia which are of use in Veterinary Medicine, with the addition of the other remedies, the use of which is adapted specially to any one class of animals studied in Veterinary Medicine (Herbivora or Carnivora). The student is required to handle the various drugs, in order to recognize their physical characteristics, to make the ordinary pharmaceutical preparations (infusions, tinctures, extracts, powders, balls, ointments and blisters), and is instructed practically in the manual required for the administration of remedies in powder, ball or fluid form to the Horse, Ox, Hog and carnivora.

During the second year a detail of two students serve one week in rotation in the Pharmacy of the Hospital, preparing all prescriptions used in this department.

PHYSIOLOGY.

The course in Physiology consists of lectures and demonstrations in which the chemical and physical processes and constituents of the animal body are considered, and the different functions traced from their appearance in the lowest animal forms to their highest development in the domestic animals and man. Especial attention is given to the nutritive functions in the domestic animal, rules being given for the adjustment of diet to the work required of the animal, whether in beasts of burden, milk or wool producers, or in animals destined for food purposes. The lectures are fully illustrated by experiments, diagrams, and tables. In connection with the course the students are required to work in the Physiological Laboratory, where they study the chemical properties and general characteristics of the Food Stuffs, Analysis of Milk, the Action of the Digestive Juices, etc.

A series of review examinations are held by the Professor, to ensure the thorough comprehension by the students of the subject matter of the lectures.

The Physiological Laboratory is fitted with the most approved instruments for physiological research, and opportunity is offered to advanced students for conducting original research under the immediate supervision of the Professor.

BOTANY.

The Botanical instruction extends over two years, and in it two objects are kept distinctly in view. The first is to present by lectures and by collateral study, such a comprehensive view of vegetable structure and classification as is now essential to anyone making the least claim to scientific culture.

During the first year no attempt is made to render it directly practical.

Digitized by Google

It is taught simply as a science, the aim of which is to train the mind of the student, and thus to prepare him for practical work which follows.

The second object is met by the exercises of the laboratory, and has direct relation to Veterinary Medicine. The Botanical instruction of the second year is exclusively practical in character. The student is required to analyze the various forage plants, and to learn their relative nutritive values.

The plants, which of recent years have been recognized as causes of disease and death among our domestic animals, are carefully studied.

Among these, the so-called "loco plants," which grow abundantly in the south-western portion of our domain, and have produced great destruction of stock, are included. In short, it is desired to teach the veterinary student the most important relations of plants to our domestic animals, and to enable him to discover these relations for himself.

ZOOLOGY.

General Zoology and Comparative Anatomy embrace the study of the animal kingdom; the organic cell and its aggregates; a short account of the tissues and their production; organs, their structure; reproduction, general facts of embryology, metamorphosis, alternation of generation, polymorphism and heterogeny; systems of classification; the evolution theory; species and varieties; a succinct account of the various groups of animals, their anatomy, development and distribution.

Practical demonstrations are given of the characteristics of the organs in the various animal types, in order to prepare the student for original zoological research.

ANATOMY.

The instruction in Descriptive Anatomy extends over two entire sessions, and embraces the study of the bones, articulations, muscles, digestive tract, respiratory apparatus, urino-genital organs, organs of circulation of the blood and lymph, nervous system, organs of special sense, and embryology of the horse, the mule, the ass, the ox, sheep and goat, hog, dog, cat and poultry. Constant dissection is required. The horse is used as the type until the parts have been thoroughly learned, and the student is then given other animals, to learn the differences which exist. During the first year the dissections are made with special reference to the bones, articulations and muscles, while the second year is devoted to the blood vessels and nerves. The dissections are under the supervision of the Professor of Anatomy, aided by a Veterinary Assistant. A detail is made each week of students of the second year, who dissect in the laboratory of the Professor of Anatomy, preparing the pieces to be used for his lectures.

Digitized by Google

The dissecting room is unsurpassed in convenience and cleanliness. The floors are of cement, the hot and cold water facilities are ample, and the room is thoroughly lighted in day time by windows on both sides of the room, and at night by gas over each table. Iron wagons serve as dissecting tables, with movable posts, allowing the animals to be placed in any required position.

HISTOLOGY

Is taught in connection with the chair of Anatomy. The laboratory is fitted with the most approved apparatus for microscopic and biological research. The anatomical elements are studied from the tissues of each of the classes of domestic animals included in veterinary medicine, in order to allow the student to appreciate the minute differences of structure which have been the cause of such gross error in the work of histologists, who have confined themselves to the tissues of a limited number of animals.

FORGING.

While the veterinarian is not expected to be a blacksmith, he should at least know the manual of an art which he is constantly called upon to direct.

Eight forges permit the students to be worked twice a week in sections of sixteen each.

The student is required to forge the horseshoe from the mould, and to prepare the horse's foot, to remove the shoe, and to put it on. The shoeing is first learned on the dead foot, then on the living horse. Later, the practical work includes the forging of pathological and surgical shoes, with a course of lectures on farriery and pathological shoeing.

THERAPEUTICS.

This course extending over the two sessions (of the Medical Department) is devoted specially to the physiological action of drugs.

GENERAL PATHOLOGY AND MORBID ANATOMY.

Instruction in General Pathology and Morbid Anatomy is given to the students of the second and third years. It consists in lectures: 1st, on General Pathological Anatomy, in which are treated the degenerations, atrophy, hypertrophy, inflammations and tumors; 2d, on Special Pathological Anatomy, in which is considered the morbid anatomy of each organ of the body. In addition to this the students of the second year are practically taught Pathological Histology in the Pathological Laboratory, and to the students of the third year are given weekly demonstrations in Micro-

Digitized by Google

scopic Morbid Anatomy. For the latter purpose there are at the disposal of the chair a more than sufficient number of morbid specimens, both fresh and alcoholic.

In the final examinations the practical as well as the theoretical knowledge of the candidate is tested.

INTERNAL PATHOLOGY AND CONTAGIOUS DISEASES.

The instruction in theory and practice of medicine, completed in two years, is given under the following headings:

General Pathology.

1. Origin of Veterinary Medicine, Medical Doctrines, Classes of Disease.
2. Etiology.—Effects on the various domestic animals of locality, climate, food, water, habitation, work, individual, race, sex and hereditary predisposition, temperament, constitution, exciting causes, poisons, specific causes, medical constitution, idiosyncrasy and immunity.
3. Symptomatology and Semiology.
4. Physical Diagnosis.—Percussion, auscultation, examination of blood and urine.
5. Diagnosis.
6. Prognosis.
7. Autopsies.

Special Pathology.

Diseases of Respiratory System.

Contagious and Zymotic Diseases.—With the laws of sanitary police in force in various parts of the United States and in Europe.

Diseases of the Digestive Apparatus.

" " Urino-Genital Apparatus.

" " Nervous System.

" " Circulatory System.

" " Ear.

" " Eye.

" " Skin.

Parasitic Diseases and Helminths.

SURGICAL PATHOLOGY.

This branch of Veterinary Science is taught by a graded course of didactic lectures, and by clinical instruction, extending over a period of two years, taking in the second and third year classes.

Digitized by Google

One year is devoted to Minor Surgery, and comprises a course of about one hundred (100) lectures. The other year, given to the study of Major Surgery, comprises about ninety (90) lectures.

In addition to this, the second and third year classes are given two hours of clinical instruction daily, from 8 to 10 A.M.

The hospital and free clinics furnish an abundance of material for practical instruction, which we believe to be one of the special features of our school; as in no other school in America is this mode of instruction as thoroughly carried out.

The senior class is required to devote one entire day to Practical Operative Surgery, when the modus operandi of each and every operation likely to be met in veterinary practice is taught.

Instruction in bandaging and dressing, and the proper manner of applying them, is given in connection with Operative Surgery.

The lectures on Minor Surgery are comprised under the following headings:

SURGICAL DIAGNOSIS.

MODE OF SECURING ANIMALS.—Horse, ox, dog, etc.

LIGATION OF ARTERIES.

CLOSURE OF WOUNDS, SUTURES, etc.

INFLAMMATION.—Varieties and complications, abscess, suppuration, mortification, cicatrization.

WOUNDS.—Incised, lacerated, bruised and punctured wounds, bites, gunshot wounds, summer wounds.

FRACTURES.—Healing of fractures, incomplete fracture, special fractures.

DISEASES OF BONE.—Inflammation of, bone tumors, ring bones, side bones, splints, spavin, curb, osteomalacia, osteoporosis.

DISEASES OF SYNOVIAL MEMBRANES.

" " ARTICULATIONS.

" " TEETH.

" " TESTICLES AND THEIR ENVELOPES.

" " TENDONS.

" " MUSCULAR TISSUE.

DISLOCATIONS.

DISEASES OF VEINS.—Thrombus, phlebitis.

" " LYMPHATICS.

" " WITHERS, NECK AND POLL.

SPRAINS.—Subcutaneous emphysema.

PHYSIOLOGICAL HORSESHOEING.

Digitized by Google

CLASSIFICATION OF LECTURES ON MAJOR SURGERY.

DISEASES OF THE FOOT.—Anatomy, Physiology, Pathology.

CORNS, fissures, keraphyllocele, keratocele, pricking, burnt sole.

QUITTOR.—Cutaneous, cartilaginous, tendinous.

STREET NAIL, acute founder, navicular disease, thrush, gangrene, necrosis, caries, purulent infection.

HERNIA.—Acute, chronic, inguinal, ventral, eventration, diaphragmatic, umbilical.

TUMORS.—Lipoma, encondroma, osteoma, odontoma, lymphadenoma, osteosarcoma, carcinomas. Inflammation of the sinus.

CASTRATION.—Normal, cryptorcia, female, other animals.

PATHOLOGICAL SHOEING.

OBSTETRICS.

A full course of instruction is given in this branch to senior students, about fifty lectures being devoted to this subject. Practical instruction will be mainly confined to demonstrations on the manican, although whenever possible cases of natural labor will be used, to the best advantage for the student.

The course of instruction is classified as follows:

OBSTETRICAL ANATOMY.—Anatomy of the hard and soft parts.

ORGANS OF GENERATION.—External—internal, reproduction, fecundation, changes and development of the embryo, differences in ruminants, pig, bitch and cat, gestation, pathology of gestation, diseases of pregnant animals, accidents, normal parturition, presentations, distokia, maternal fœtal, diseases of the fœtus, monstrosities, distokia from malpresentation, obstetrical operations, accidents of parturition, pathology of parturition, diseases and abnormalities of the young animal.

ZOOTECHNICS AND HYGIENE

Include the study of the origin and domestication of animals employed for profit by man, the laws of breeding and production, heredity, race characteristics and individual impressions, the effect of climate, aliment, work and the means to be employed in the selection and handling of animals to adapt them for the most economical benefit, whether destined as motors, wool or milk producers, or as articles of food.

MUSEUM.

The Museum of this department has grown rapidly since the organization of the Veterinary Department, both through the preparations made in the dissecting room, and the liberality of the Philadelphia veterinarians. Valuable specimens are constantly added to it from the animals which have died in the extensive Zoological Garden of the city. In addition to a large

Digitized by Google

number of anatomical and pathological veterinary specimens, there have been added during the last year skeletons of elephant, giraffe, camel, zebus, tapir, pecary, etc.

HOSPITAL.

The Hospital offers the most extensive and complete accommodations for sick animals to be found in America.

Second and third year students are placed directly in charge of cases, are required to keep the clinical records, to administer the medicines, and are allowed, under the supervision of the Clinical Professors, to perform part or all of operations that regard for the safety of the animal permits. A detail of one student from each class take "guard" duty for twenty-four hours in rotation, receive the animals which enter the hospital, give the required care at night, when other students are absent, and perform the duties usually assigned to a "resident."

A detail from the second year class compound all medicines used in the Hospital.

A large number of animals furnished from the private practice of the Clinical Professors, and by indigent persons whose animals receive free treatment, are treated at the clinic daily, from 8 to 10 A.M., giving ample material for clinical lectures and practical instruction.

FARRIERY.

The student removes the shoes of the animals in his charge, examines the feet and assists at the shoeing. In addition to shoeing for lameness, a large amount of ordinary shoeing is done at the forges of the Department, giving ample experience in methods demanded by different classes of horses, and by the various forms of the horse's foot.

EXAMINATIONS AND DEGREE.

Examinations are held at the close of each year, in which the student must duly pass before he is allowed to proceed to the studies of the next year. At the close of the course, and after passing a satisfactory examination, the student receives the degree of *Veterinariæ Medicinæ Doctor* (*V.M.D.*)

FEES.

Matriculation Fee (paid once only) five dollars. Tuition Fee, annually, one hundred dollars.

For further information, address,

RUSH SHIPPEN HUIDEKOPER,

Dean of Veterinary Department,

University of Pennsylvania.

Digitized by Google

DEPARTMENT OF BIOLOGY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy;* Director of the Biological Department.
JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany.*
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology.*
JOHN A. RYDEN, Professor of *Comparative Embryology.*
N. ARCHER RANDOLPH, M.D., Professor of *Physiology.*
CHARLES S. DOLLEY, M.D., Instructor in *General Biology.*
EDWARD KELLY, Instructor in *Mammalian Anatomy.*

HORACE JAYNE, M.D., *Secretary.*

MATRICULATES, 1886–87.

SECOND YEAR.

George Fetterolf,	Girard College,	Philadelphia.
Milton J. Greenman,	3731 Locust-st.,	North East, Pa.
Robert S. Maison,	6901 Woodland-ave.,	Philadelphia.
Hyland C. Murphey,	5134 Lancaster-ave.,	Philadelphia.
Frank R. Remont,	4204 Viola-st.,	Philadelphia.
Marcus A. Weems,	3408 Sansom-st.,	Columbia, Tex.

FIRST YEAR.

Lucien H. Alexander,	1935 Arch-st.,	Philadelphia.
Edward Bancroft,	3310 Arch-st.,	Philadelphia.
John A. Blouse,	3707 Woodland-ave.,	York, Pa.
Charles M. Burk,	3248 Chancellor-st.,	Carksboro, N. J.
Harry H. Clark,		Woodbury, N. J.
Julian H. Dewey,	1537 Centennial-ave.,	Philadelphia.
Charles D. Harris,	2117 Green-st.,	Philadelphia.
William P. Howell,	1621 Chestnut-st.,	Wheeling, W. Va.
Walter Lathrop,	3731 Locust-st.,	Montrose, Pa.
Howard Mellor,	460 Marshall-st.,	Philadelphia.
John Alexander McIlwain,	2044 N. 7th-st.,	Philadelphia.
Charles F. Nassau,	1515 Wallace-st.,	Philadelphia.
George G. Ross,	1532 Arch-st.,	Philadelphia.
Lawrence S. Smith,	1419 Walnut-st.,	Philadelphia.
Edwin G. Winna,	168 Gay-st.,	Manayunk.
Albert D. Whiting,	33 Wyoming-st.,	Pottsville, Pa.

Digitized by Google

The aim of this Department is:

1. To conduct the Biological studies of the students in a course in Philosophy for Undergraduates.

2. To provide a course of instruction in Biology for students of both sexes who are preparing to study medicine, or who desire systematic training in this subject.

3. To afford advanced instruction to graduates who are candidates for the degree of Doctor of Philosophy.

4. To encourage original research in Biology by offering facilities to scientists engaged in investigation, and by giving aid and instruction to advanced students prosecuting special work.

The new LABORATORY building, erected for the use of this Department, contains a lecture-room, two large laboratories for undergraduate Biological work, rooms for the Zoological and Botanical collections and libraries, laboratories for advanced and special work in Botany, Zoology, Histology, Embryology, and Physiology, besides private laboratories for the use of the instructors, and rooms for Photography, with ample space for the Aquaria, Animals, and storage.

Proper and abundant MATERIAL is furnished to students engaged in special work. A supply of the ordinary forms used in the practical laboratory exercises is kept, as far as possible, in the building.

An excellent COLLECTION of skeletons, typical forms, and dissected preparations is formed, and a fine Herbarium, containing about forty-five thousand specimens, is deposited in the building.

A good working LIBRARY, containing important Text-books and complete sets of many valuable Journals, has been provided. The large public libraries of the city are, under regulations, open to students. The Academy of Natural Sciences, with its rich museum and large library, the most complete in Biology in the country, is accessible to students without charge.

1. COURSE FOR STUDENTS IN THE COLLEGE DEPARTMENT.

Instruction in Biology forms a part of a Course in Philosophy in the College Department. For details of this course, conditions of admission examinations and degrees, see the General Catalogue.

2. GENERAL COURSE IN BIOLOGY.

This course forms an important branch of modern general culture, and also furnishes a peculiarly appropriate and valuable preparation for the study of medicine. With it may be combined, without extra charge, such studies in the College Department (the Languages, Chemistry, Physics

Digitized by Google

Mathematics, Drawing, etc.,) as the student, with the advice of the Secretary of the Biological Faculty, may select. A liberal course of study may be thus arranged to suit individual requirements.

The course extends through two years of two terms each and is constituted as follows:—

FIRST YEAR.

GENERAL BIOLOGY.—1. Lectures on the General Principles of Biology; Morphology and Physiology of Plants and Animals. Systematic Zoology. (1*)

2. Laboratory Course. Vegetal Biology. Animal Biology. Huxley and Martin's *Elementary Biology*. Bessey's *Botany*. Brooks' Handbook of *Invertebrate Zoology*. Parker's *Zootomy*. (9)

MAMMALIAN ANATOMY.—1. Lectures on Descriptive Anatomy. (1)

2. Laboratory Course (dissection.) Mivart's *The Cat*. Wilder and Gage's *Anatomical Technology*. (9)

BOTANY.—Systematic Botany. (Practical exercises.) Gray's *Botanical Text-book*. Gray's *Manual of Botany*. (6)

SECOND YEAR.

BOTANY.—1. (*a*) Medical Botany; the plants used in medicine, adulteration of foods and drugs, or (*b*) Vegetal Morphology.

2. The life-histories of plants. (Practical exercises.) Bessey's *Botany*, Sach's *Text-book of Botany*. (6)

SYSTEMATIC ZOOLOGY.—The classification and distribution of animals. (Lectures.) (1)

ANIMAL MORPHOLOGY.—1. The outlines of General Zoology and Comparative Anatomy. (Lectures.) Claus' *Elementary Text-book of Zoology*. Gegenbauer's *Comparative Anatomy*. (2)

2. Laboratory Course, (dissection.) (4)

ANIMAL HISTOLOGY.—Lectures and laboratory exercises on Microscopic Anatomy. Schäfer's *Essentials of Histology*. (8)

EMBRYOLOGY.—Lectures and laboratory exercises on the development of the Chick. Foster and Balfour's *Elementary Embryology*. (8)

PHYSIOLOGY.—The Elements of Physiology. (Lectures and practical work.) Dalton's *Physiology*. (4)

The instruction in General Biology is in the form of lectures accompanied by practical laboratory exercises, and comprises the study of the structure, functions and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena mani-

* The numerals indicate hours of *instruction* per week.

Digitized by Google

fested in the different forms of living matter, before beginning the special study of either Botany or Zoology. The series studied are: (1) Amœba, Paramœcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Braken-fern and Bean-plant as exhibiting the structure and activities of Plants; (3) These compared with Sponge, Hydra, Starfish, Earthworm, Leech, Cyclops, Crayfish, Grasshopper, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, and Pigeon, as Animals.

The courses in Mammalian Anatomy consist of lectures and practical work. The lectures include a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy, and are well illustrated by preparations, models, diagrams, etc. The laboratory course embraces the careful dissection of the Cat.

The work in Botany, during the *First Year*, consists in exercises in the determination and classification of plants, and begins in the second term after the student has finished the first half of the course in General Biology, and has acquired a sufficient knowledge of vegetal structure and physiology. In the first term of the *Second Year* some choice is permitted. The student may take up Medical Botany, if intending to study medicine, or may devote his attention to more advanced work in plant structure. During the second term the life-histories of plants,—their development, growth, and reproduction are studied.

The lectures on Systematic Zoology begin in the first year and continue through the second. They embrace the structure, classification and distribution of Animals.

The instruction in Animal Morphology includes (1) a course of lectures upon the following topics: Individuals and colonies; cells and cell aggregates; a short account of the tissues; growth and division of labor; organs and their structure; reproduction and the general facts of embryology; metamorphosis, alternation of generation, polymorphism, and heterogeny; systems of classification; the Darwinian theory; species and varieties; followed by the study of a selected group of animals, and (2) a laboratory course in the dissection of typical forms and special parts chosen by the instructor.

Histology is taught, during the first term in the second year, mainly by practical work with the microscope. The structure of animal tissues and organs and the methods of examining and preparing microscopic specimens are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Embryology of the Chick, with laboratory exercises in the preparation and study of the principal stages of development.

Digitized by Google

The instruction in the elements of Human and Comparative Physiology embraces the study of the phenomena of nutrition, of food-stuffs and digestion; circulation; respiration; reproduction; muscular action, including locomotion, speech, etc.; and the functional activity of nerve and brain.

3. INSTRUCTION FOR GRADUATE STUDENTS.

Students in the Department of Philosophy, who have selected Botany or Zoology as the main subject in their course for the degree of Doctor of Philosophy, and who have had the requisite training, will, on entering, begin original investigation for the required graduation thesis. If not sufficiently prepared for this work, or if Botany or Zoology, or both, have been selected as subordinate studies, the students are advised to take the General Course in Biology, or such portions of it as may be deemed necessary. The conditions of entrance, fees, examinations, and degrees are set forth in the General Catalogue, under Department of Philosophy.

4. INVESTIGATION AND ADVANCED INSTRUCTION.

Scientists engaged in the investigation of any subject in Biology can be accommodated in the laboratory by permission of the Faculty. A moderate fee will be charged for the use of the rooms and apparatus, and for attendance. Instruction of advanced students and of those engaged in special work is given by special lectures and by laboratory exercises under the personal direction of the professors. Meetings of the instructors and advanced students are held frequently for the discussion of recent discoveries in the various branches of Biology.

PRIZES.

Two Prizes, one of twenty-five dollars, and one of fifteen dollars, will be awarded to students of the first year for the best dissected preparations illustrating the anatomy of the cat.

FEES.

All students pay on entering a matriculation fee of five dollars.

The fee for tuition in the full course is one hundred and fifty dollars a year, payable in two instalments, on October 1st and February 1st. The fees for partial courses, payable in advance, are as follows: For each course of lectures fifteen dollars, for the Courses in General Biology and Mammalian Anatomy, seventy-five dollars each, for the Courses in Systematic Botany, Medical Botany, Vegetal Morphology, Vegetal Physiology, Animal Morphology, Histology, Embryology and Physiology, thirty dollars each.

Digitized by Google

A fee of ten dollars is charged to each student receiving a certificate on completion of the full course.

There are no extra charges for material used in the practical classes, or for the use of instruments or reagents.

ADMISSIONS, EXAMINATIONS, AND DEGREES.

Candidates for admission to the general course must show that they are able to profit by the instruction.

Students who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the Department.

Examinations are held at the close of each college year. The student who has completed the full course in Biology, and has passed satisfactory examinations, is granted a Certificate which admits him to the Medical Department without examination. No degrees are given solely for study in this Department; but Biological students in the Department of Philosophy receive the degree of Ph.D., subject to the conditions imposed by that Department.

For further information respecting this Department, address Dr. Horace Jayne, Secretary of the Faculty, Biological Laboratory, Pine and 37th Sts., Philadelphia.

EXAMINATION QUESTIONS. JUNE, 1886.

Professor Leidy.

General Biology. Systematic Zoology.

1. What are the characteristic distinctions in structure and shape of mineral and organized bodies?

2. Name and describe the physical properties and chemical composition of the material of organization.

3. By what organisms, solely, is the material manufactured, and what conditions are necessary for its production?

4. Where do animals obtain the material, and what plants obtain it from other organisms?

5. Why is locomotive power in general necessary to the animal and unnecessary to the plant?

6. What is the characteristic physical elemental form of organization?

7. What are the usual constituents of this elemental form in different stages?

8. Which is the chief and essential constituent always present in the active state?

Digitized by Google

9. How is this elemental form or body related with the germ of the seed and egg; with the simplest plant and animal; and with the complex forms of plants and animals?

10. By what usual mode are the complex organisms developed from the primitive or elemental form?

11. Give characteristic examples of the primitive form of a green plant, of a fungus, and of an animal.

12. What are the two ordinary hard substances which sustain the softer structures in invertebrates and vertebrates, and how do they differ in chemical composition?

13. Name the chief sub-divisions or sub-kingdoms of the animal kingdom.

14. Name the classes of vertebrata, and give the chief distinctive characters.

15. To which classes belong eels, snakes, porpoises, turtles, armadillos, frogs, bats, and the narwhal?

16. In which class is the sacrum absent, in which is it present constantly, and in which orders of two other classes is it also absent?

17. Describe the difference in the osseous frame-work of the wing of the bat, bird, and pterodactyl.

18. What is the difference in the osseous structure of the leg and foot of mammals and reptiles compared with that of birds?

19. How would you distinguish the old and new world Primates by differences in the nose and ear and the denition?

20. What is the difference in the sternum of the Cursores and other birds, and what determines the difference?

21. What condition of the mandible and occipital articulation distinguishes the Mammalia and Sauropsida?

22. How do the teeth of Rodentia and Proboscidia accord?

23. To what teeth are the tusks of the walrus and elephant referred?

24. To which orders belong the porcupine, hedge-hog, echidna, manis bat, mole, mouse, weasel, opossum, sloth, hawk, robin, owl, crow, woodpecker, alligator, and salamander?

25. What is usual dental formula in Ungulates?

26. How does it vary from this in the Catarrhine Primates?

27. In which order of mammals are the teeth most numerous?

28. How do the teeth of mammals differ in their attachment from those of most other classes?

29. What relation is observed in the number of toes and horns, with the arrangement of the molar teeth in Ungulata, and what two sub-orders are based on the difference?

30. What is the difference in the construction of the articulation of the mandible in Carnivora, Ungulata, and Rodentia.

Digitized by Google

Dr. Dolley.

Laboratory Work in General Biology.

1. Describe an Amœba; (*a*) class, (*b*) habitat, (*c*) details of structure, (*d*) modes of locomotion and prehension of food, (*e*) behavior to reagents, heat and cold, (*f*) methods of multiplication. With what elemental form of organization does the Amœba correspond?

2. Define an Infusorian and distinguish between the main groups or orders. Describe the methods of (*a*) locomotion, (*b*) prehension of food, (*c*) multiplication. Give in detail the structure of Vorticella and Paramœcium.

3. What is the theory of "Spontaneous Generation," and how is it proven untenable? What are Bacteria? How are they classified? Describe their (*a*) habitat, (*b*) modes of multiplication, (*c*) relation to putrefaction, fermentation, and disease.

4. What is "Brownian movement"? How distinguished from the movement of Bacteria or other minute living bodies?

5. What process is instituted sooner or later in sweetened fluids exposed to the air? What are the products of this process? How do you prove the cause to be a living particle? Give details of its structure, modes of reproduction, and relation to light and heat.

6. What is Chlorophyll? What is its role in the vital processes of the plant? What are the conditions necessary to its formation? What plants are destitute of chlorophyll? Is chlorophyll found in organisms other than plants?

7. To what class of plants do Moulds belong? How do the members of this class differ in respect to the source of their nourishment from green plants?

8. What is meant by (*a*) mycelium, (*b*) hyphæ, (*c*) conidiophors, (*d*) sporangia or asci, (*e*) conidia, (*f*) ascospores? Draw diagram of a Mucor and of Penicillium.

9. Describe in general terms Chara and Nitella. Name and give details as to position and structure of the male and female organs. What is cyclosis?

10. Define rhizome, rhizoid, rachis, frond, pinna, pinnule, sorus, sporangia, and indusium, as seen in the Bracken-fern.

11. What is meant by alternation of generations? Describe this as illustrated by ferns, naming the essential structural features in the plants concerned.

12. What relation have fibro-vascular bundles to stomata, and what is the function and distribution of each in the Bracken-fern?

13. How are scalariform ducts and spiral vessels formed?

14. What material fills the parenchymatous cells of the rhizome in winter;

Digitized by Google

of what use is this to the plant and how is it made use of? What is osmosis? What substances are capable and what incapable of osmosis?

15. What substance forms the woody tissue of plants; with what other vegetal substance is it isomeric, and is it found outside the vegetal kingdom, if so, where?

16. Distinguish between respiration and nutrition as carried on in the foliage of plants. How does the respiration of plants compare with that of animals?

17. Describe the general structure of a Calcareous Sponge? Draw a diagram illustrating the arrangement of body cavity or cloaca; the osculum; the radiating tubes; the spicules, and the sponge flesh. How does a sponge reproduce?

18. Describe, with the aid of a diagram, the arrangement and relations of the madreporic body; stone-canal; ambulacral-feet; ambulacral vesicles or ampullæ; circumoral water tube, and radial water tubes of a Star-fish?

19. Describe, with the aid af a diagram, the location and relations of the hepatic cœca; the reproductive organs, and stomach of a Star-fish?

20. From what portion of the alimentary canal does the respiratory tree of a Holothurian arise?

21. Describe, with the aid of a diagram, the divisions of the alimentary canal, and the arrangement of the segmental organs in an Earth-worm.

22. Name and enumerate the appendages of a Cray-fish in order, beginning with the most anterior; include in brackets those belonging to the various regions of the body.

23. What is the arrangement of the nervous system in the Cray-fish?

24. Describe the means possessed by a Cray-fish of comminuting its food.

25. Sketch diagrammatically the anatomy of a Clam, naming the various parts.

26. Describe the shoulder girdle of the Frog.

27. Describe, with aid of a diagram, the heart of the Frog, the vessels connected with it; the mechanism of the circulation.

28. Draw diagrams of the brain of the Frog, showing the parts and ventricles. From what primary cerebral vesicle are the optic lobes developed? What is the lamina terminalis?

29. Give the cranial nerves of the Frog. Describe the facial nerve.

30. Describe the male and female generative organs of the Frog. What relation do the testes bear to the kidneys?

PROF. JAYNE.

Mammalian Anatomy.

1. How many bones in the skeleton of a cat? Name them.

2. How may you distinguish cervical from lumbar vertebræ?

Digitized by Google

3. With what bones are the frontal bones united?

4. Give the different parts of the humerus—its processes and articulating surfaces.

5. What muscles are inserted into the humerus?

6. What muscles arise from the humerus?

7. Give origin and insertion of following muscles:—Flexor profundus digitorum; Digastric; Obturator externus; Serratus magnus.

8. Describe the External and Internal intercostal muscles.

9. With what two muscles is the tendon of the Obturator internus associated?

10. Give the dentition of the cat.

11. Where is the Parotid gland, and where does its duct empty?

12. What is the Cæcum?

13. Describe the Pancreas.

14. Describe the Heart and its vessels.

15. Give the branches of the Cœliac Axis.

16. What is the origin, course, and distribution of the Vertebral artery?

17. Give the parts of the Brain; the Cranial Nerves, their foramina of exit from the skull and their *general* distribution.

18. Describe the origin of a spinal nerve.

19. How many Spinal nerves assist in the formation of the Brachial Plexus? Describe the Musculo-spiral nerve.

20. What are the Splanchnic Nerves?

Profs. Sharp and Jayne.

Animal Morphology, Histology and Embryology.

1. Give three points where animals and plants seem to differ and explain how these differences fail.

2. Define antimere, metemere and paramere.

3. Define a cell, and give examples.

4. Give in general the changes that take place in the nucleus in cell division.

5. Give the three principal parts of vertebrate blood. From what layer of the embryo is the blood developed?

6. Define epithelium, and tell how the vertebrata, in general, differ from the invertebrata in the formation of the epithelium.

7. What are cilia, and what two motions are produced by them in reference to the body on which they are formed?

8. Describe cartilage and bone, and tell from what layer of the embryo they are formed.

9. Describe the two kinds of muscular tissue, and tell how the inverte-

Digitized by Google

brata groups, with one exception, differ as regards muscular tissue from the vertebrate; give the exception.

10. Describe a ganglion and nerve; in general how do they differ physiologically?

11. Give in general the process of segmentation, and the formation of the gastrula. What are the two layers of the gastrula called?

12. What is the primary and what is the secondary function of the vascular system?

13. Define a venous heart and an arterial heart. How do they differ?

14. Describe the mammalian circulation.

15. Give the evolution of a gill, and tell how it differs from a lung.

16. Describe the tracheal system of insects.

17. How do the vertebrata and invertebrata differ as regards the position of the nervous system?

18. Give in general the anatomy of the human eye.

19. What is meant by "alternation of generation," and "parthenogenesis?"

20. What is the chorda dorsalis and what does it partly form in the higher vertebrata?

21. Describe the somites of the chick embryo. How are they placed as regards the chorda dorsalis, and from what layer of the embryo are they formed?

22. Give the names of the three segments of the anterior part of the medullary canal of the chick embryo.

23. Describe the formation of the amnion.

24. What is connective tissue? Give some examples.

25. What is meant by a "water vascular system"?

26. Define the mammalia.

27. Describe the different kinds of horns.

28. Give the development of the shoulder-girdle in mammals.

29. Describe the shoulder-girdle and sternum of Ornithorhynchus.

30. Give a classification of the Ungulata.

Dr. Dolley.

Comparative Physiology.

1. Give the various steps in the process of digestion, stating the peculiar action of the different digestive fluids.

2. Give the different groups of foods, with examples under each.

3. Give the constituents of mammalian blood.

4. Describe the formation and elements of blood-clot, and the circumstances necessary for the formation of clot.

Digitized by Google

5. Describe the origin, function, and fate of the red blood corpuscles.

6. Give the mechanism of the circulation of the blood.

7. How is lymph returned to the blood? Describe the special mechanism for this purpose found in certain animals.

8. Describe respiration in plants.

9. How does the arrangement of the respiratory surfaces vary in aquatic and land animals?

10. Give methods of respiration in Protozoans, Cœlenterates, Echinoderms, Insects, and Mollusks.

11. Describe the gradual evolution of a vertebrate lung. How do Amphibians fill the lungs?

12. How is heat generated and regulated in living organisms?

13. Give examples of the evolution of heat in plants.

14. Upon what do differences of temperature depend? Give illustrations in different groups of animals.

15. What chemical processes take place in muscles during contraction?

16. What is a muscle note?

17. On what does the force of a muscle depend?

18. Distinguish between Tetanus and Rigor Mortis.

19. Give examples of syringograde locomotion.

20. Describe the evolution of the kidney.

21. What is the main product carried off by the excretory fluids?

22. Give instances of the evolution of light in plants and animals. State the cause.

23. Give an outline of the evolution of a nervous system.

24. What is a Reflex Action?

Prof. Rothrock.

Structural Botany.

1. What can you say about fixation and precision of botanical names?

2. Give in tabular form an outline of the present system of classification of flowering plants; down to, but excluding, orders.

3. Explain the doctrine of Natural Selection. What name is most prominently associated with it?

4. What are Genera? Give your views in full in answer to this question.

5. Define the term Achenium. Give an illustration.

6. Tell all you can about the production of the Embryo.

7. What is Polyembryony, and where found?

8. What can you tell concerning the structure and fertilization of Lythrum salicaria?

9. Explain the structure and function of the Pollen.

Digitized by Google

10. What is the Placenta; what is its function, and how many kinds can you illustrate?

11. Tell what you can concerning a Pine Cone. How are its ovules fertilized?

12. What are Cleistogamous flowers? Name an illustration.

13. What is a neutral flower?

14. Explain fertilization of the so-called compound flowers.

15. What do you mean by "suppression of parts," and what does it lead to in the plan of the flower?

16. What are Syngenesious flowers?

17. Explain the structure of the genus Euphorbia.

18. With what organ in Campanula is the pappus of an Aster homologous?

19. What are the characteristics of the Protophyta?

Digitized by Google

DEPARTMENT OF LAW.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

P. PEMBERTON MORRIS, A.M., LL.D., Emeritus Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.

HON. J. I. CLARK HARE, LL.D., Professor of the *Institutes of Law*, including, inter alia, *International, Constitutional*, and *Commercial Law*.

E. COPPEE MITCHELL, LL.D.,* Professor of the Law of *Real Estate* and *Conveyancing*, and of *Equity Jurisprudence*.

JAMES PARSONS, A.M., Professor of the Law of *Personal Relations* and *Personal Property*.

JOHN J. REESE, A.M., M.D., Professor of *Medical Jurisprudence*.

GEORGE TUCKER BISPHAM, A.M., Professor of *Practice, Pleading*, and *Evidence at Law and in Equity*.

E. C. MITCHELL, *Dean of the Law Faculty*,
518 Walnut Street, Philadelphia.

MATRICULATES.

SENIOR CLASS.

Biddle, Louis A.,	Philadelphia,	John G. Johnson.
Bond, William C.,	Sugar Hill,	Hon. B. H. Brewster.
Boswell, Russell T.,	Philadelphia,	J. S. Williams.
Bremer, Charles, Jr.,	Philadelphia,	Wm. L. Nevin.
Brennan, Louis P.,	Philadelphia,	J. M. Pile.
Brown, Charles D.,	Philadelphia,	John A. Brown.
Calmore, Walter W.,	Philadelphia,	
Coxe, Henry Brinton, Jr.,	Philadelphia,	F. I. Gowen.
Dallett, Morris,	Philadelphia,	H. T. Coleman.
Deary, Francis J.,	Philadelphia,	P. Archer.
De Witt, Alexander H.,	Philadelphia,	Sharp & Alleman.
Evans, Wm. Rees,	Philadelphia,	Hon. B. F. Hughes.
Finletter, Leonard,	Philadelphia,	W. W. Porter.
Fletcher, Robert P.,	Philadelphia,	Jerome Carty.
Fries, Harry K.,	Philadelphia,	J. A. Abrams.
Fronefield, W. Roger,	West Chester,	E. Coppee Mitchell.
Garrett, John Lentz,	Chester,	O. B. Dickinson.
Hartman, John Fred, Jr.,	Philadelphia,	J. M. Collins.

* Deceased January 25, 1867.

Digitized by Google

Heckler, Calvin F.,	Fricks,	Hon. Henry M. Hoyt.
Hunter, Ernest H.,	Philadelphia,	
Jones, James Collins,	Philadelphia,	H. J. Lukens.
Kirkpatrick, Samuel Huckel,	Frankford,	
Krebs, Frank P.,	Tamaqua,	Hon. B. H. Brewster.
Kuni, Charles, Jr.,	Philadelphia,	Wm. B. Lane.
Lloyd, Horatio G., Jr.,	Camden, N. J.,	F. T. Lloyd.
Lodge, R. Gardiner,	Philadelphia,	M. Stevenson.
Lowrie, Roberts,	Tyrone,	J. S. Gerhard.
McGrath, Robert Hunter, Jr.,	Philadelphia,	Geo. Tucker Bispham.
McLanahan, J. Craig,	Hollidaysburg,	E. Coppee Mitchell.
McMurrow, Henry A.,	Philadelphia,	J. G. Leach.
McNeil, Thomas W.,	Unionville,	W. M. Hayes.
Marter, George W.,	Philadelphia,	A. Zane, Jr.
Mershon, Abner H.,	Morrisville,	Hon. A. Briggs.
Mills, Daniel, Jr.,	Philadelphia,	E. Cooper Shapley.
Mitchell, S. Duffield,	West Chester,	Alfred P. Reid.
Moon, Everett,	Fallsington,	McVeagh & Bispham.
Moore, Ziba T.,	Philadelphia,	James Parsons.
Orlemann, Harry P.,	Philadelphia,	W. H. Staake.
Ott, Albert M.,	Independence, Mo.,	Geo. S. Graham.
Schiedt, Jacob A.,	Philadelphia,	A. L. Hennershotz.
Siggons, Louis K.,	Philadelphia,	
Smith, Henry Washington,	Philadelphia,	Hon. B. F. Hughes.
Smith, Wm. L.,	Philadelphia,	Wm. L. Nevin.
Smithers, Wm. W.,	Philadelphia,	E. P. Smithers.
Snyder, Arthur C.,	Philadelphia,	J. R. Morgan.
Stackhouse, J. Burton,	Philadelphia,	Hon. A. Briggs.
Starr, Lewis,	Woodbury, N. J.,	Garrison & French.
Taylor, Joseph T.,	Philadelphia,	F. S. Cantrell.
Tesnow, Henry,	Philadelphia,	G. W. Reed.
Thompson, Joseph W.,	Phœnixville,	S. W. Pennypacker.
Wilson, William C.,	Chester Valley,	B. F. Fisher.
Work, Milton C.,	Philadelphia,	R. E. Shapley.
Wooters, Wm. W.,	Philadelphia,	Furth & Singer.
Wyeth, Stuart,	Philadelphia,	

JUNIOR CLASS.

Bedford, J. Claude,	Lost Creek,	Geo. R. Kaercher.
Benners, G. Bartleson,	Philadelphia,	G. M. & W. L. Wagner.
Bethell, J. Uhle,	Philadelphia,	H. A. L. Pyle.
Bourgeois, Anderson,	Estelville, N. J.,	
Bourgeois, George A., Jr.,	Mauricetown, N. J.,	
Bright, O. Percy,	Wilmington, Del.,	Walton Penniwill.
Brooks, T. Fernley,	Philadelphia,	A. J. Maloney.
Bullitt, James F.,	Philadelphia,	Jno. C. Bullitt.
Burt, Horace B.,	Philadelphia,	Admitted.
Cassel, John R.,	Cedars, P. O.,	Aaron S. Swartz.
Cassidy, H. Gilbert,	Philadelphia,	L. C. Cassidy.
Carlile, W. Wilson,	Philadelphia,	R. E. Shapley.

Digitized by Google

Chew, David S. B.,	Philadelphia,	R. C. McMutrie.
Coles, Franklin A.,	Philadelphia,	
Conrade, David Howard,	Philadelphia,	Geo. McGowan.
Cooper, A. Morton,	Philadelphia,	Alfred Moore.
Crilly, Francis J.,	Philadelphia,	R. E. Wright.
Dickson, Franklin Strawn,	Philadelphia,	
Dohan, Joseph M.,	Philadelphia,	Crawford & Dallas.
Felton, Cornelius C.,	Thurlow,	MacVeagh & Bispham.
Galbraith, Davenport,	Erie,	Wm. S. Lane.
Gallager, Francis G.,	Philadelphia,	R. H. Hinckley.
Geuther, J. Oscar,	Philadelphia,	J. F. Budd.
Glaser, Charles W.,	Philadelphia,	Jos. R. Rhoads.
Goepp, Philip H.,	Philadelphia,	James Parsons.
Gosh, Christian,	Watsontown,	Lowrey & Hall.
Green, Harry,	Philadelphia,	S. F. Flood.
Gummey, Charles F., Jr.,	Germantown,	Jno. G. Johnson.
Howitz, George Q.,	Philadelphia,	E. C. Mitchell.
Jacobs, George W., Jr.,	Glenloch,	A. S. Ashbridge, Jr.
List, John F.,	Philadelphia,	
Littleton, William G.,	Philadelphia,	W. E. Littleton.
Litzenberg, C. Collins,	Radnor,	Gendell & Reeves.
McCaffrey, Harry S.,	Philadelphia,	
McCann, David S.,	Pittsburgh,	Kennedy & Doty.
McDevitt, Henry C.,	Philadelphia,	E. S. Daly.
McPherson, Jno. Bruce,	Pittsburgh,	MacVeagh & Bispham.
Marshall, John H.,	Charleston, Ill.,	F. K Dunn.
Mayer, Clinton O.,	Philadelphia,	E. C. Mitchell.
Morrell, Edward,	Philadelphia,	Jno. G. Johnson.
Morris, Lindley,	Moorestown, N. J.,	E. C. Shapley.
Mossell, Aaron A.,	Lockport, N. Y.,	
Myers, George DeB,	Philadelphia,	Hon. Leonard Myers.
Norris, Isaac, 3rd.,	Philadelphia,	MacVeagh & Bispham.
Patterson, Henry L.,	Philadelphia,	A. M. Burton.
Peirce, W. Grant,	West Chester,	E. C. Mitchell.
Robb, Henry B.,	Philadelphia,	W. W. Porter.
Rommel, J. Martin,	Philadelphia,	Jas. M. West.
Rumsey, Horace M.,	Philadelphia,	Hon. F. C. Brewster.
Sawada, Shunzo Z.,	Tokio, Japan,	
Sawyer, James B.,	Pittsburgh,	
Sheive, Conrad S.,	Norristown,	H. K. Weand.
Smith, Alfred P.,	Philadelphia,	MacVeagh & Bispham.
Smith, George L.,	Philadelphia,	W. Henry Smith.
Smith, H. Austie,	Philadelphia,	MacVeagh & Bispham.
Smith, H. Forrest, Jr.,	Philadelphia,	R. J. Williams.
Smith, Wm. Wharton,	Philadelphia,	MacVeagh & Bispham.
Stevick, Guy L. R.,	Carlisle,	J. M. & W. P. Gest.
Stitzell, Harry F.,	Brownsville,	
Stockley, Frank B.,	Philadelphia,	W. L. C. Biddle.
Stoughton, Augustus,	Philadelphia,	C. E. Morgan, Jr.
Tack, Theodore A.,	Philadelphia,	W. W. Wiltbank,
Taylor, George H.,	Philadelphia,	Leaming, Black & Rhoads.
Taylor, G. Morrison,	Philadelphia,	C. O. Beasley.
Thomson, William G.,	Philadelphia,	Jno. G. Johnson.

Digitized by Google

Tustin, Ernest L.,	Lewisburg,	Hon. S. P. Wolverton.
Vaux, George, Jr.,	Philadelphia,	P. P. Morris.
Varney, William W.,	Philadelphia,	
Wadsworth, Edward D.,	Philadelphia,	MacVeagh & Bispham.
Waldron, Harry E.,	Philadelphia,	Sharp & Alleman.
Wolbert, Charles S.,	Philadelphia,	C. O. Beasley.
Worman, George W.,	Frenchtown, N. J.,	S. S. Hollingsworth.
Wray, Henry Russell,	Philadelphia,	Jno M. Strong.

SPECIAL STUDENTS.

Keely, Oliver S.,	Philadelphia,	
Zebley, J. Walter,	Philadelphia,	L. H. Redner.

SUMMARY.

Seniors,	54
Juniors,	73
Special,	2
Total,	129

The aim of this Department is to aid students who are preparing for admission to the Bar, as well as others who are desirous of acquiring knowledge in any branch of legal learning. The Conveyancer or the Merchant may attend with profit the particular lectures appropriate to his pursuits.

COURSE OF STUDY.

Students may matriculate in this Department at any stage of their professional preparation. No entrance examination is required.

The Course occupies two years. Each year is divided into two terms, the First beginning on the first of October, the Second on the first of February. Each term continues four months. The course is so arranged that a student entering at the beginning of any October term will complete his studies in two years.

SESSION OF 1887–8.

October Term.	February Term.
Evidence.	Practice and Pleading in Equity.
Contracts, Bills of Exchange and Promissory Notes; Bills of Lading.	Conflict of Laws, Criminal Law.
Equity Jurisprudence.	Equity Jurisprudence.
Agency, Partnership.	Corporations, Bailment, Life Insurance.
	Medical Jurisprudence.

Digitized by Google

SESSION OF 1888–9.

OCTOBER TERM.	FEBRUARY TERM.
Practice and Pleading at Law.	Practice and Pleading at Law.
Constitutional Law, Insurance.	Suretyship and Guaranty.
Real Estate.	Conveyancing.
Domestic Relations; Legacies.	Executors and Administrators.

Instruction is given by lectures, and by books and portions of books upon the subjects of the lectures, which are recommended by the Professors The students are frequently and carefully examined.

Moot Courts are held, at which questions, prepared by the Professors, are argued. These Courts meet once a week during each term; and an evening is assigned to each case, so that a continuous discussion can be had of the points raised for argument. The Law Academy of Philadelphia, also, an institution of long standing, to which not only students, but many practicing lawyers belong, gives opportunity for debate and argument that has been found of the greatest practical advantage.

The Supreme Court of Pennsylvania, the County Courts, and the Federal Courts are in session in Philadelphia during a great part of the year; so that students can have ample facilities for observing judicial proceedings.

FEES.

The Tuition Fee for the full course (except Medical Jurisprudence) is forty dollars a term. Each Professor will issue tickets for his own lectures to students who do not desire to attend the full course, and will fix the fee at his own discretion. Students who take the full course pay, also, a matriculation fee of five dollars. No other charges are made.

Students who have received the degree of Bachelor of Laws may attend all lectures free of charge.

The students of this Department are also permitted to attend the Lectures given in the other Departments free of charge. Some of these, especially the Lectures on *English History* and *Literature*, *Rhetoric*, *Intellectual and Moral Philosophy* and *Social Science*, are of value to the Lawyer, and an opportunity is thus offered to those whose previous training has been to some extend limited to make up the deficiency.

The law students have the free use of the University Library, under the usual regulations.

The Library of the Law Association of Philadelphia (one of the largest in the country) is also open to students of Law in the University for a fee of three dollars per annum, under proper regulations.

Digitized by Google

EXAMINATIONS AND DEGREES.

The following is the statue of the University which fixes the qualifications of candidates for graduation:—

"In order to obtain the degree of the Bachelor of Laws, there shall be required of every candidate—

"1. That he shall have attended upon the full course of instruction (both Lectures and Examinations) given in the Law Department, except the Lectures on Medical Jurisprudence.

"2. He shall have prepared and submitted to the Faculty, at some time to be fixed by them, an essay, composed by himself, on some legal subject, sufficient in merit to satisfy the Faculty of his fitness to receive the degree.

"3. He shall have passed an examination at the end of each session upon the subjects of study during that session. The examination shall be conducted by the Faculty, either orally or in writing, as they may determine, in the presence of such of the members of the committee on the said Law Department belonging to this Board as may choose to attend. And the members of the Board of Examiners appointed by the Courts of Philadelphia may be present at the examination if they desire to do so."

The Essay required from each candidate must be handed to the Dean of the Faculty by the 15th of February.

Errors in spelling or grammar, or other evidence of the want of a good English education, will preclude a candidate from receiving a degree.

The examinations required by the statute are both written and oral, and are held during the last week in May. The questions used at the written examination in May, 1886, will be found on a subsequent page.

Students are not admitted to advanced standing. Actual attendance on the full course of two years is required for graduation.

Students who have attended the lectures of any of the Professors, without taking a full course, may receive certificates of proficiency.

PRIZES.

The Alumni of this Department have established two prizes, one of seventy-five dollars, called the SHARSWOOD PRIZE, and one of fifty dollars, called the MEREDITH PRIZE, to be competed for by the Graduating Class for the best and the second best graduation essay. They are awarded by the Faculty.

A Faculty prize of fifty dollars is given to the student in either class who passes the best written examination with all the Professors, the answers to the questions proposed to be completed within a limited time.

ADMISSION TO THE BAR.

Graduates of this Department having complied with the Rules of Court,

Digitized by Google

are admitted to practice in the Courts of Common Pleas and Orphans' Court of Philadelphia, in accordance with the following rule adopted by those courts in June, 1875,—

"Any citizen of the United States, of full age, who shall have been graduated Bachelor of Laws by the University of Pennsylvania, after the course of study required in the University, may be admitted to practice as an attorney of this court, if he shall have complied with the rule now in force as to the preliminary examination and been registered for one year in the Prothonotary's office as a student of law in said University by the Dean of the Law Faculty thereof."

The preliminary examination referred to in this rule is conducted by the Board of Examiners appointed by the courts of Philadelphia County, and embraces all the branches of a good English education. No person can be registered as a student of law without passing this examination.

Application for admission and for information should be made to Prof. Parsons, at his office, 1534 Locust street, Philadelphia.

EXAMINATION QUESTIONS, MAY, 1886.

Professor Hare.

1. What were the four principal heads of contracts under the Roman law? Enumerate and describe their subdivisions.
2. Describe the prætorian jurisdiction, and how it was exercised.
3. State the doctrine of consideration and its origin.
4. Is a consideration essential to the validity of a promissory note? What is the rule as to covenants?
5. Must the consideration be adequate, and what inadequacy vitiates?
6. Is the seller of a specific chattel answerable for the goodness and qualities of his wares in the absence of fraud, warranty and descriptive words; and what is the rule in this regard as to contracts for the sale and delivery of goods of a certain kind?
7. Define a sale by description, and state wherein it differs from a sale with warranty?
8. What remedies are open to the buyer when the thing tendered under an executory contract of sale does not answer to its terms?
9. What are the requisities to a recovery in an action of deceit for a false representation?
10. Must performance be literally exact, and may the goods be declined and an action maintained against the seller for a variance as to time, quality or kind, which does not impair their value?

Digitized by Google

Professor Mitchell.

1. What are the three principal points in which Courts of Equity differ from those of the Common Law, according to Blackstone? Explain each of them.

2. How were equitable principles administered in Pennsylvania during the time when equitable forms were not practiced in our courts? Give an illustration of your answer, showing how the equity would have been administered by the Court of Chancery, and how it was actually administered here.

3. How far are precatory words operative to create a trust?

4. What effect does the Statute of Frauds have upon trusts of land created without writing? When is such a trust within the Statute?

5. In what cases will a trust arise from the conduct of the person who acquires the title to property independently of any agreement, and without regard to any intention on his part to do wrong or acquire an unfair advantage?

6. Land was conveyed thus: A to B in fee, for the use of C in fee as soon as C shall have married D. Point out a resulting use and a springing use, and say in what event the resulting use would cease to be conditional and become absolute.

7. What is the *prima facie* presumption as to the validity of an antenuptual contract by which the woman releases all her marital rights in her expected husband's estate, for an insufficient consideration?

8. What is "conversion out and out"? Give illustration.

9. What is "constructive notice"? What is meant by the phrase "putting a party upon inquiry"?

10. Suppose a testator, by his will, gave to A a legacy of $10,000, and in the same will devised to B land belonging to A, and A elected to keep his land. What would be the rights of B in equity?

Professor Parsons.

State in reply to each question the reason for your answer.

1. Is the policy of a person insured in a mutual insurance company subject to alteration by the company on the ground that he is a corporator?

2. What change in practice has been introduced by the Constitution to protect the owner of property taken by eminent domain?

3. What is meant by a partnership in the profits?

4. Can a partner by estoppel be put into bankruptcy?

5. What is the effect of trading in a partner's individual name?

6. When can a partner sue his co-partner?

Digitized by Google

7. Why, except by statute, could a special partner's share not be taken in execution?

8. Upon what is a partner's equity founded?

9. What is the extent of a banker's lien?

10. How can a railroad company compete with express companies in collecting, delivering and transporting freight?

PROFESSOR BISPHAM.

Evidence.

1. What is evidence, and under what three subdivisions has the subject been considered?

2. Give the rules in the Duchess of Kingston's case.

3. Explain what is meant by the term res gestæ, and give one or more illustrations.

4. Is the plea of *nil debet* a good plea in an action on a judgment of a court of a sister State? Explain your answer, and mention the leading case upon the subject.

5. If A sues the executor of B in a county court of this State, can A be a witness for any, and (if any) what, purposes?

Practice and Pleading in Equity.

1. Can the holder of an equitable title to real estate maintain ejectment in the Circuit Court of the United States sitting in Pennsylvania? Give the reasons for your answer.

2. Mention any four heads of the equitable jurisdiction of the Courts of Common Pleas in Pennsylvania.

3. Name the formal parts of a bill in equity.

4. What is a "speaking" demurrer?

5. Suppose you do not demur to the *relief* prayed for in the bill, but demur *generally* to the *discovery*, is such a demurrer good? Give the reasons for your answer.

III. BY THE FACULTY OF LAW—

1. "The Sharswood Prize," to *Lewis Lawrence Smith.* Subject: "Negotiable Paper pledged as Collateral Security."

2. "The Meredith Prize," to *Thomas C. Wilson.* Subject: "The Fourth Section of the Statute of Frauds."

3. "The Faculty Prize," to *Lindley M. Garrison*, of the Senior Class.

Digitized by Google

DEPARTMENT OF PHILOSOPHY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
E. OTIS KENDALL, LL.D., DEAN, and Professor of *Mathematics*.
JOSEPH LEIDY, M.D., LL.D., Professor of *Zoology*.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology*.
REV. ROBERT E. THOMPSON, A.M., Professor of *History*.
FREDERICK A. GENTH, PH.D., Professor of *Inorganic Chemistry*.
SAMUEL B. HOWELL, M.D., Assistant Professor of *Geology*.
GEORGE. F. BARKER, M.D., PH.B., Professor of *Physics*.
JAMES PARSONS, A.M., Professor of *Law*.
GEORGE A. KŒNIG, PH.D., Professor of *Mineralogy*.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of *Botany*.
THEO. G. WORMLEY, M.D., LL.D., Professor of *Organic Chemistry*.
MORTON W. EATON, PH.D., Professor of *Comparative Philology*.
EDMUND J. JAMES, PH.D., Professor of *Political and Social Science*.
REV. GEORGE S. FULLERTON, A.M., B.D., Prof. Adj. in *Intellectual and Moral Philosophy*.
JOHN P. PETERS, PH.D., Professor of *Hebrew*.
DANIEL G. BRINTON, M.D., Professor of *American Languages and Archæology*.
HERMANN V. HILPRECHT, PH.D., Professor of *Assyrian*.
MORRIS JASTROW, JR., PH.D., Professor of *Arabic* and *Rabbinical Literature*.
JAMES McKEEN CATTELL, PH.D., Lecturer in *Psycho-Physics*.

EDMUND J. JAMES, PH.D., *Secretary*.

MATRICULATES.

Arthur W. Goodspeed, A.B. (Harvard),	University.
William C. Scott, A.B., A.M. (Princeton),	210 South Fourth St.
J. Burnet Crane, A.B. (Univ. of Penn.),	42d and Spruce Sts.
Robert S. De Bow, A.B., Phila. High School, B.D., (Drew Theological Seminary),	Philadelphia.
Frank S. Ballentine, A.M. (Univ. Penn.),	do.

The object of this department is to supervise advanced studies, and, as far as possible, to afford advanced instruction in the various branches of Literature and Science. In those subjects which are ordinarily taught in

Digitized by Google

the undergraduate courses of our American colleges, the only instruction given will be of an advanced character. In those which are usually not represented at all, or only very inadequately, both advanced and elementary courses will be offered. The opportunities of the department in each branch of study are open to all who in the judgment of the professor in charge are qualified to profit by the instruction given.

Instruction suitable for advanced students is at present offered in the following subjects:

1. American Archæology and Languages.
2. American History—Political and Constitutional.
3. Biology, Lectures and Laboratory practice.
4. Botany, Lectures and Laboratory practice.
5. Comparative Anatomy.
6. Comparative Philology and Sanskrit.
7. Chemistry Inorganic, Lectures and Laboratory practice.
8. Law, Roman and History of Common Law.
9. Mineralogy, Lectures and Laboratory practice.
10. Political and Social Science.

(*a*) Political Economy—Courses in Theoretical and applied Political Economy and in the History of Economic Theories and Institutions.

(*b*) Political Science—Theory of the State and Comparative Constitutional Law.

(*c*) Public Finance and Administration.

11. Philosophy—Mental, Moral, and History of Speculative Philosophy.
12. Physics.
13. Semitic Languages.

(*a*) Hebrew—Classical and Rabbinical.

(*b*) Aramæan.

(*c*) Assyrian and Babylonian (Sumerian and Akkadian).

(*d*) Ethiopic.

(*e*) Arabic.

(*f*) Other dialects like Phenician and Himjaritic known only from a few inscriptions.

14. Zoology—Lectures and Laboratory Practice.

FEES.

For Fees, Expenses, etc., see p. 164.

DEGREES.

The Degree of Doctor of Philosophy is conferred upon the following conditions:

Digitized by Google

1. The candidate must be either a Collegiate Bachelor of Arts or of Science, or must satisfy the Faculty, by examination or otherwise, that he possesses an equivalent preparation.

2. He must pursue during two years, under the supervision of the Faculty, a course of study in at least three branches of literature or science (the choice to be approved by the Faculty), one of which shall be designated as the principal branch, and the other two as subordinate branches.

3. He must pursue detailed investigations in the principal study, must present a satisfactory thesis therein, and must pass an examination in all three branches.

For further information respecting this Department, address the Secretary of the Faculty.

POST-GRADUATE COURSE IN LAW.

MATRICULATES.

	SENIORS.	
Brown, J. Douglas,	420 Walnut-st.,	Philadelphia.
Leonard, Frederick M.,	119 S. 4th-st.,	Philadelphia.
Ralston, Robert,	402 Walnut-st.,	Philadelphia.
Stewart, William M.,	420 Walnut-st.,	Philadelphia.
	JUNIORS.	
Biddle, Caldwell K.,	504 Locust-st.,	Philadelphia.
Blanchard, John,	402 Walnut-st.,	Philadelphia.
Croasdale, John P.,	719 Walnut-st.,	Philadelphia.
Harding, Butler K.,	901 Walnut-st.,	Philadelphia.
Hoffman, Charles,	36 S. 3d-st.,	Philadelphia.
McCourt, Thomas,		Scranton, Pa.
Melcher, Webster A.,		Horsham, Pa.
Scott, William C.,	263 S. 4th-st.,	Philadelphia.

This course has for its aim to broaden and deepen the foundation of legal education. The first step required for the student's progress is the thorough training of a Law School. In the drill of an ordinary course at such an institution, he acquires a practical experience in the machinery of litigation, and he also acquires the lawyer's process of handling cases or of reasoning from them by analogy, while at the same time he masters the leading principles as they are applied in the main departments of law.

The advanced student starts with this equipment. His task is now that of the true lawyer, to find out the reason for every legal proposition which is established, and also to discover its relative importance in the hierarchy

Digitized by Google

of principles which make up the system of law. The investigation involves researches in two directions: First, the source of each principle must be discovered, and the germ when found must be traced through the changes which it has undergone in the course of its growth or decay. The soundness of a principle or the range of its application can thus be illustrated and tested by experience. Owing to the conservative energy of the English race, pre-eminently exemplified in its lawyers, legal doctrines have maintained their continuity in spite of conquests and revolutions, thus furnishing an opportunity for the study of principles in operation under different institutions.

The material for investigating the sources of our law are abundant. The Anglo-Saxon laws exist in a state of exceptional completeness; the Feudal system has been wrought out almost before our eyes and stands before us in its rigid symmetry. The mediæval trade customs which entered England with commerce have been preserved in municipal statutes; the Pandects are a repository from which common lawyers have pilfered, from Glanville to Story. A lawyer who reads the Digest of Justinian for the first time will be struck by the familiar ideas which he encounters at every turn and which he thought were inspired by the common law until he met them in Justinian's compilation.

The sources of our law have been explored, but they have not been turned to account. A history of legal thought must be written in order to make our precious archives available, and until that desideratum is obtained, the full benefit of experience, which is the only guide for the application of any legal doctrine, will not be at command. In the absence of such a history, the scattered information bearing upon the genesis and evolution of legal tenets must be gathered at a disadvantage.

The second study is to classify the law and reduce it to a system. The Profession shares the aspiration of the lay public for a body of law which everyone can understand. It is this professional craving which accounts for the multitude of text-books professing to abridge different parts of the law, and for the frequent attempts to embody sections of the law in a series of propositions. The common aim of the bar and of the public is to simplify the law. The profession, however, knows that this can be accomplished in but one way, and that is by mastering the principles which underlie the different phases of the law. Not only must every part be known, but its relation to every other part must be ascertained in order to organize a system. The epitomes, made of different parts, serve to counteract the segregation of law according to the objects to which it is applied, and to correct this retrograde tendency. The principles which are universal, extracted from digests of all the parts, will form a body by themselves, and the rank of each principle will be regulated by its relative importance. The

Digitized by Google

modifications which the principles undergo in special parts of the law will be the only qualifications requiring special mention. The principles, for instance, of patent law will then be severed from the arts and sciences and form an integral portion of the legal system. The best professional opinion could readily furnish such an analysis of this, as well as of other specialties. The law is not absorbed by the material in which it works; on the contrary, by classifying matter the law brings it under the sway of reason. The law will be simplified because it will be scientific. It will not be petrified by enactment.

COURSE OF STUDY.

The course of study covers two years. The student, however, can begin at the opening of either year, November 1st.

One year of the study is devoted to the study of the Roman law and of the principles that have grown out of it.

The text-books used in this course are Hadley's *Introduction to the Roman Law*, Mackeldey's *Roman Law* and Holland's *Jurisprudence*. But these text-books serve simply as an outline of the subject. The works of Austin, Clark, Markby, Hunter, Moyle, Roby and others in English, besides authors in German and French, are consulted and utilized to fill out the framework of study.

In the analysis of an act, an important element in legal investigation, Aquinas and the Jesuit writers of to-day furnish the only source of information. Gury's *Compendium Morale* is used, though any Catholic manual would serve the purpose.

The year devoted to a study of the Common law is taken up with the Anglo-Saxon law, the Feudal system, and the principles peculiar to the Common law and developed in the course of its history. There is no adequate history of the English law, and the results of German investigations, of great importance during the past fifty years, lie scattered through separate treatises and periodicals, and have not been collected and made accessible to English students. The work of Glasson, *Histoire du droit et des Institutions d'Angleterre*, comprehends in its first and second volumes a summary of the modern researches into the early periods of our law, both Saxon and Norman. The second volume on the Norman period is used as text-book in connection with Gunderman's *Die Common Law* and Digby's *History of the Law of Real Property*. Kemble's *Anglo-Saxons in England* is the only available work in English for the Saxon period, and is adopted as the text-book for the class.

The primary principles of the Common law have been investigated by Judge Holmes, and his work on the Common law will serve as the guide for a study of them. The comparison of English and Continental theories

Digitized by Google

of law is forced upon the profession in controversies between citizens of different countries where the rules of the various systems compete for the control of the legal relations between the parties. The work of Westlake on Private International Law is the most convenient text-book, though Story, Wharton, Foote and other writers will be consulted.

ADMISSION AND FEES.

Graduates of any law school of recognized standing and members of the bar are eligible as students in this department. The annual fee for tuition is twenty-five dollars.

EXAMINATIONS AND DEGREES.

Examinations are held annually in May, and are both oral and written. The written questions put at the last examination are appended.

Graduates of this Course receive the degree of Master of Laws, unless the post-graduate course of law is combined with two other courses of study in the Department of Philosophy. Then the degree of Doctor of Philosophy is conferred, on conditions stated on pp. 150–51.

A thesis upon some topic connected with the course is required to be handed in as early as possible during the second year. It is expected to contain an exhaustive analysis of the subject-matter.

For further information apply to the Dean,

JAMES PARSONS,
1534 *Locust Street*,
Philadelphia.

ANNUAL EXAMINATION, MAY, 1886.

Professor Parsons.

State in reply to each question the reason for your answer.

1. Give the origin and purpose of the Interdicts Uti *possidetis* and *Utrubi?*
2. What were *res mancipi?*
3. What was the *consultatio veteris Icti?*
4. How do actions concur?
5. What is a tacit pledge?
6. How did the Civil Law regard joint contracts?
7. What was the *depositum irregulare?*
8. How were pacts introduced?
9. Who could claim *beneficium separationis?*
10. What are the elements of a right?

Digitized by Google

DEPARTMENT OF PHYSICAL EDUCATION.

This Department carries into practical operation the conviction that during the period of growth the body needs quite as much training as the mind, and that a college which holds out incentives to intellectual progress should not overlook the bodily progress without which all intellectual prizes, when won, are useless. To what other cause than the neglect of physical culture is it due that, in times past, the first scholars in college generally failed in after life to make good their early promise? Impressed with the belief that those who seek to develop the mind should also exercise a supervision over the body, the University has instituted this Department, and, through the liberality of the City and the zeal of the Alumni, has provided the means, and, what is equally important, the system, for the due care and development of the Physical Education of its students.

The means are supplied in the Athletic Grounds, obtained from the City, lying next to and partly surrounded by the College buildings, and comprising four acres, which have been fenced, graded and improved, a fine quarter-mile track laid, the middle of the lot prepared for cricket, base-ball, foot-ball, etc., a grand stand erected, and a competent person engaged to supervise and restrict the use of the grounds, and to see that the intentions of the Trustees that they are to serve the purpose of Physical Education, as well as of healthful relaxation, shall be thoroughly carried out. The boat-house of the Athletic Association, situated on the Schuylkill, above the dam, is open to all matriculates in the Department of Physical Education upon the payment of a small additional sum.

The University has also fitted up a gymnasium, wherein are to be found all the latest appliances for the proper, systematic and symmetrical development of the body. These are to be used by each student only after undergoing his physical examination, and receiving advise from the Director of this Department as to the particular needs of his body, and as to the weak points which need strengthening and development. This advice is founded upon a careful study not only of his present condition, but of his personal and family history, taking thus into consideration hereditary predisposition to disease, if any exists.

The system consists in direct, personal, individual care of each student, who, immediately after entrance to College, receives a thorough physical

Digitized by Google

examination in regard to his general health, strength, and muscular development, which is duly recorded. An extract from this record is sent to his parent or guardian as follows:

DEAR SIR:

The following extract from the University Records represents the general physical condition of
of the Class of

Development . . . . . Average Development . . . . . .
Strength . . . . . Average Strength . . . . . .
Condition, viz.: Relation of Strength
to development . . . . . Average Condition . . . . . .
Chest Capacity . . . . . Average Capacity . . . . . .
Muscles especially requiring development . . . . . .
Exercise recommended . . . . . .
General Advice . . . . . .

It is hoped that he will follow the line of physical work thus indicated with sufficient persistence to effect some permanent improvement.

[Signed] *Director of Physical Education.*

This examination is repeated at stated intervals, certainly once every year of his college life, and the record will show the improvement or deterioration of each student, and the amount and the quality of exercise which each one demands, both of which must be administered or recommended by an experienced teacher. Merely competitive sports do not of themselves supply these demands. Some men, naturally athletic and fond of exercise, need to be guided and directed, sometimes to be restrained; others, of sluggish temperament or of too studious habits, must be stimulated; all require to have their work, whether voluntary or compulsory, directed by proper methods, so that the result may be a harmonious and symmetrical development of the entire organism.

It is not proposed to make the attendance on this Department compulsory; all that can be hoped for is that its importance will become so manifest to the students themselves that the small demand which it makes upon their time will be responded to with alacrity and zeal.

For further information apply to

J. WILLIAM WHITE, M.D.,
Director of Physical Education,
1810 *South Rittenhouse Square.*

Digitized by Google

LIBRARY.

The University possesses one of the largest and most complete libraries of works relating to Finance and Political Economy to be found in any educational institution of the world. The foundation was laid by the great COLLECTION OF THE LATE STEPHEN COLWELL, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, besides many in German. This has been supplemented by the gift from MR. MCCALMONT, of London, of a collection of about three thousand English pamphlets, covering the period from the close of the seventeenth century to our own time, and bound in chronological order; and also by the bequest of the LIBRARY OF THE LATE HENRY C. CAREY, which includes many works that appeared since Mr. Colwell's death, and is especially rich in statistical literature, European government reports, and the like.

The ROGERS ENGINEERING LIBRARY is composed of standard works in this Department, together with a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, etc.

The Library contains also THE WETHERILL LIBRARY OF WORKS ON CHEMICAL SCIENCE, and THE ALLEN LIBRARIES OF CLASSICAL LITERATURE, BIBLIOGRAPHY, SHAKESPEARE, AND MILITARY SCIENCE.

Besides these, there is a large collection of works on General Literature, some of them the gifts of the early friends of the University, among them BENJAMIN FRANKLIN, DR. RICHARD PETERS, and LOUIS XVI. The income of the TOBIAS WAGNER LIBRARY FUND is expended in the purchase of books in the department of History. The LIBRARIES OF THE LITERARY AND SCIENTIFIC SOCIETIES are of considerable value.

The entire collection is open to all undergraduates, and as an evidence of the high estimation in which it is held, it may be stated that students from other institutions of learning have, on a number of occasions, come to Philadelphia for the purpose of pursuing investigations in this library, which the means at hand in their own did not permit.

A card catalogue is now in preparation which will embrace in a single alphabet, references under author, title and subject, to the entire contents of the Library. The subject references are made more than usually copious, to the end that the resources of the Library may be utilized in the highest possible degree.

The Library is open every College day from 9 A.M. to 3 P.M., and students are permitted to withdraw, for home perusal, two volumes at a time, for two weeks, subject to a renewal for a like period, if not needed by others. The use of the library for consultation is also freely accorded to graduates, and to strangers under proper regulations.

Digitized by Google

FEES AND EXPENSES.

TUITION FEES.

The Tuition Fee in the *College Department* is one hundred and fifty dollars a year, except that for the last three years in the Towne Scientific School, and for the last two years in the course in Philosophy it is two hundred dollars a year, and for the course in Music thirty dollars a year.

The Tuition Fee in the *Departments of Medicine, Biology* and *Philosophy* is one hundred and fifty dollars a year; in the *Departments of Dentistry* and *Veterinary Medicine*, one hundred dollars a year; in the *Department of Law*, eighty dollars a year; and in the *Auxiliary Department of Medicine*, except to students and graduates of the Department of Medicine, thirty-five dollars for the course.

For time at which these tuition fees are payable, see tabulated statement below. All fees for special or partial courses are payable in advance.

Students in one department may attend lectures given in any other department, by consent of the Dean, without charge, but they shall pay the regular special fees for all practical work.

Graduates of a department may attend the lectures in that department, but shall also pay regular special fees for all practical work.

Under no circumstances are any changes made in the established fees.

GRADUATION FEE.

In the *College Department* the Graduation Fee is for the Baccalaureate degree twenty dollars, for the Master's degree ten dollars.

The Graduation Fee in the *Department of Dentistry* is thirty dollars; in the *Department of Philosophy*, thirty-five dollars; and in the *Auxiliary Department of Medicine*, ten dollars.

No graduation fee is required in the *Departments of Medicine, of Veterinary Medicine*, and *of Law*.

CERTIFICATE FEE.

A fee of ten dollars is charged each student receiving a certificate on completion of a special or partial course.

Digitized by Google

COLLEGE DEPARTMENT.

Freshman Year and Sophomore Year.

Annual Tuition Fee	Course in Arts, . . . / Course in Philosophy, / Course in Science, . .	$150 00
Annual Fee for Department of Physical Culture, ...		5 00

Junior Year and Senior Year.

Annual Tuition Fee	Course in Arts, ...	$150 00
	Course in Philosophy, ...	200 00
	Course in Technical Science, . . .	200 00
	Course in Finance and Economy, .	150 00
	Course in Music, ...	30 00
* Annual Fee for Department of Physical Culture, ...		5 00
Deposit required in Chemical Laboratory to cover breakage, balance refunded, ...		$20 00

The Annual Tuition Fees are payable to the Treasurer of the University in two instalments, on October 1st and February 1st.

Graduation Fee, Baccalaureate degree, ...	$20 00
" " Master's degree, ...	10 00
Fee for Certificate of Special or Partial Course, ...	10 00

MEDICAL DEPARTMENT.

WINTER TERM.

First Year.

Matriculation Fee, ...	$5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection, ...	150 00
Dissecting material, ...	$1 a part.

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection, ...	$150 00
Dissecting material, ...	$1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee), ...	$150 00

* This fee is not required of students in the course of Music.

Digitized by Google

Fee for the full third year course to graduates of other schools, including privilege of applying for graduation (no graduation fee), ... 150 00
Material for operating, ... $1 a part.

Fourth Year (Voluntary).

For general ticket, including all the practical courses of this year (no graduation fee), ... $150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee), ... 200 00

SPRING SESSION.

Matriculation fee (paid once only), ... $5 00
Tuition fee, ... 30 00
This sum will be credited on account of the fee for the ensuing Winter Term.

The Tuition Fee of $150 each year is conditioned on its being paid before November 1st. If a division of payments is desired, the fee will be $160 for the year, of which at least $80 must be paid before November 1st.

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including for bandaging and operating, to graduates of this School, ... $75 00
For a single Course of Lectures, except Materia Medica, . . . 20 00
For Course on Materia Medica, and on Bandaging and Operating, each, ... 10 00
For Practical Course in the Chemical Laboratory, ... 25 00
For the Course in Practical Gynæcology of the third year, . . 25 00
For any one of the remaining practical courses of the third year, 15 00

Graduates of the School are admitted to the LECTURES free of charge; but they pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

All fees are payable in advance to the Secretary of the Faculty, who will issue a general ticket of admission to all the lectures and practical instruction.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

Matriculation Fee,	$5 00
Tuition Fee for the course,	35 00

Students and Graduates of the Department of Medicine may attend the lectures in this department without charge.

Graduation Fee,	10 00

Partial Courses.

Tuition Fee for any one or more of the five courses, each,	$15 00

DEPARTMENT OF DENTISTRY.

Matriculation Fee,	$5 00

Winter Term.

First Year.

Tuition Fee,	$100 00

Second Year.

Tuition Fee,	$100 00
Fee for Dissection,	10 00
Graduation Fee,	30 00

The payment of the $100 Tuition Fee may be divided as follows: $50 on entering, and the balance on or before November 1st. If any part is left unpaid after this date, $10 will be added to the Tuition Fee.

DEPARTMENT OF BIOLOGY.

Matriculation Fee,	$5 00

General Course.

First Year and Second Year.

Annual Tuition Fee,	$150 00
Fee for Certificate,	10 00

Fees for Partial Courses.

General Biology,	$90 00
Mammalian Anatomy,	30 00
Botany, plant analysis,	30 00
Histology,	30 00
Embryology,	30 00
Zoology and Comparative Anatomy,	30 00
Botany and Morphology,	75 00
Physiology,	25 00

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

Matriculation Fee,	$5 00
Annual Tuition Fee,	100 00

DEPARTMENT OF LAW.

Matriculation Fee,	$5 00

First Year and Second Year.

Annual Tuition Fee,	$80 00

A graduation fee is not required.

DEPARTMENT OF PHILOSOPHY.

Matriculation Fee,	$5 00

First Year and Second Year.

Annual Tuition Fee,	$150 00
Graduation Fee,	35 00

The cases of Applicants for a degree on examination alone, without instruction or supervision, will be considered separately.

POST-GRADUATE COURSE OF LAW.

First Year and Second Year.

Annual Tuition Fee,	$25 00

ACCOMMODATIONS.

Good board can be had near the University at from five to seven dollars a week; and a list of recommended boarding-houses can be seen on application to the Rev. Jesse Y. Burk, Secretary of the Board of Trustees, at the University.

EXPENSES.

	Min.	Max.
Board, thirty weeks*	$150 00	$210 00
Tuition (according to Department and Year of the Course)	100 00	200 00
Text-books,	10 00	50 00
	$260 00	$460 00

* The session in some of the Departments is from five to nine weeks longer.

Digitized by Google

DEGREES, HONORS, AND PRIZES, 1885–1886.

HONORARY DEGREES.

JUNE 15, 1886.

Bachelor of Arts.—ROBERT M. PATTERSON.

Master of Arts.—SAMUEL POWEL, JR., A.M. (Brown), WILLIAM H. KLAPP, A.M. (Harvard), M.D.

Doctor of Music.—HUGH ARCHIBALD CLARKE.

Doctor of Divinity.—REV. JOSEPH D. NEWLIN, REV. JOHN ANDREWS HARRIS, REV. THEODORE LORENZO SEIP.

Doctor of Laws.—MOST REV. PATRICK J. RYAN, Archbishop; JOSEPH PARSONS COMEGYS, Chief Justice.

DEGREES IN COURSE—CERTIFICATES.

JUNE 15, 1886.

Bachelor of Arts.—

David Sands Brown Chew,
James Burnet Crane,
George Christian Eisenhardt,
William West Frazier, 3d,
James Biddle Halsey,
Robert Murray Hogg,
George Quintard Horwitz,
John Chester Hyde, Jr.,
Edward Miller Jefferys,
Samuel Stryker Kneass,
Irvin Poley Knipe,
Albert William Manifold,
George Petry,
William Campbell Posey,
Jacob Martin Rommel, Jr.,
Edwin Jaquett Sellers,
Walter Moore Shaw,
Frederick Thibault,
Howard James Truman,
Joseph Price Tunis,
Thomas Holmes Walker,
George W. Wilgus,
Charles Baeder Williams,
Charles Elmer Woodruff,
Samuel Megargee Wright.

Bachelor of Science.—

(POST SENIORS.)

Enoch Jones Acker,
Percy Ash,
William Henry Bower,
George Whitefield Chance,
George Howland Chase,
Samuel Williamson Cheyney,
Herman Herzog, Jr.,
Thomas Hill Brinton Jacobs,
Jerome Thomas Kelly,
Wilmer Francis Lubbe,
David Lincoln Luke,
John Gibson McCall,

Digitized by Google

Allen Brooks Cuthbert,
Valentine Sherman Doebler,
John Stephens Durham,
George Kingsbury Fischer,
Stephen Harris,
John Lincoln Harvey,
Edwin Newberry Hawkins,
Hermann Siegfried Hering,
Marshall Rogers Pugh,
Lino Francesco Rondinella,
Samuel McMurray Smith,
Morris Sutphen Solomon,
Henry Szlapka,
Francis Thibault,
Herbert Coleman Whitaker,
William Schmœle Wolfe.

(SENIORS.)

Edgar Augustus Alcot,
William Augustus Bigler,
Amos Peaslee Brown, Jr.,
Abram Trimble Eastwick,
William Salter Freeman,
Theodore Gould, Jr.,
Thomas Graham Grier,
Enon Major Harris, Jr.,
Charles Herman Haupt,
Gerald Holsman,
Joseph Edward Horn,
Francis Emlen Hoskins,
Joseph David Israel,
James Harmer Knight,
Jacob Lychenheim,
Richard McCall,
Percy McGeorge,
Henry Jackson Mullen,
Edward Arnott Pearson,
William Green Ridgway,
Henry Alexander Robb,
Robert Lewis Rutter,
Harry Randolph Stoops,
Earl Thomson,
Henry Davis Todd, Jr.,
David Edward Tracy,
William Daniel Weikel,
Samuel Jennings White,
John Williamson Ziegler.

Bachelor of Philosophy.—

Charles Price Mercer,
Joseph Sailer, Jr.,
John Weissgerber.

Bachelor of Laws.—

Ephraim L. Acker,
John S. Adams,
Charles Y. Audenreid,
Caldwell K. Biddle,
John Blanchard,
Marcus I. Brock,
Frank A. Brunner,
Henry G. Bryant,
Joseph L. Cahall,
Henry Carver,
Charles P. Craig,
John P. Croasdale,
George B. Davidson,
James A. Develin,
Archibald R. Dewey,
Franklin H. Evans,
James Fitzpatrick,
Joseph T. Foulke,
George A. Freyer,
Lindley Miller Garrison,
A Jackson Gillespie,
Charles Hoffman,
Ralph Kauffman,
Frank Lambader, Jr.,
Benson Landon,
James W. Laws,
Eugene J. Lindsay,
John MacDonald,
Edward F. McGovern,
Joseph G. Magee,
Charles H. Marple,
John Faber Miller,
Howard Wurts Page,
William Henry Price,
G. Edward Schlegelmilch,
William C. Scott,
William W. Sergeant,
Alexander Simes, Jr.,
Lewis L. Smith,
Frank P. Sproul,
F. Marshall Stanger,
James D. Steele,

Digitized by Google

John F. Halbach,
Moses P. Hamberg,
Henry J. Hancock,
Butler Kenner Harding,
John J. Hillman,
Joseph H. Hinkson,
John O. Ulrich,
T. Chalmers Umsted,
Thomas C. Wilson,
T. Stewart Wood,
George G. Ziegler.

Doctor of Medicine.—

William H. Broughton, Ph.B.

Master of Arts.—

Cyrus Adler, A.B.,
Edward Potts Cheyney, A.B.,
Rev. Edmund Morris Fergusson, A.B.,
Edward Grier Fullerton, A.B.,
Rev. James Powers Hawkes, A.B.,
George Lodge, A.B.,
Elliston Joseph Morris, A.B., M.D.,
Rev. John Robert Moses, A.B.,
Howard Wurtz Page, A.B.,
Paul Judd Sartain, A.B., M.L.,
Rev. Francis Edward Smiley, A.B.

Practical Chemist.—

William Henry Bower, B.S.,
George Howland Chase, B.S.,
Herman Herzog, Jr., B.S.,
David Lincoln Luke, B.S.,
William Schmoele Wolfe, B.S.

Mining Engineer.—

Samuel Williamson Cheyney, B.S.,
John Lincoln Harvey, B.S.,
Edwin Newberry Hawkins, B.S.

Civil Engineer.—

Percy Ash, B S.,
George Whitefield Chance, B.S.,
Allen Brooks Cuthbert, B.S.,
Valentine Sherman Doebler, B.S.,
John S. Elliott, B.S.,
Stephen Harris, B.S.,
Jerome Thomas Kelly, B.S.,
John Gibson McCall, B S.,
Samuel McMurray Smith, B.S.

Mechanical Engineer.—

George Kingsbury Fisher, B S.,
Hermann Siegfried Hering, B.S.,
Wilmer Francis Lubbe, B.S.,
Lino Francesco Rondinella, B.S.,
Henry Szlapka, B.S.,
Francis Thibault, B.S.,
Herbert Coleman Whitaker, B.S.

Bachelor of Sciences Auxiliary to Medicine.—

John Nathaniel Baylis, M.D.,
Thomas G. Lee, M.D.,
William George Howell, M.D.

Master of Laws.—

E. Clinton Rhoads.

CERTIFICATES.

Department of Arts.—Edmund Austin Stewardson.

Department of Science.—William Colladay Robinson, James Clay Travilla.

Digitized by Google

Department in Finance and Economy.—George J. Hopkins.

Department of Music.—Lilian F. Glenn, Marianne E. White, William F. Smith.

Department of Biology.—Ida Keller.

MAY 1, 1886.

Doctor of Medicine.—

Achey, Frederick A.,	Lancaster,	Pennsylvania.
Aitken, Henry W.,	West Chester,	do.
Albertson, William C.,	Vienna,	New Jersey.
Avison, David, Ph.C. (London),	Camden,	do.
Baylis, John N.,	Bridgeton,	do.
Beck, Charles S., Jr.,	Wilkes-Barre,	Pennsylvania.
Benton, John W.,	Ogdensburg,	New York.
Bevan, Andrew J.,	Rosemont,	Pennsylvania.
Bley, Alphonso A. W., Ph.G.,	Philadelphia,	do.
Brumbaugh, S. Oscar,	Huntingdon,	do.
Burr, Charles W., B.S. (Univ. of Penna.),	Philadelphia,	do.
Carey, William A.,	Wenonah,	New Jersey
Carle, Charles W.,	Ashley,	Pennsylvania.
Carson, Alfred D., Ph.D. (Lyceum of Valparaiso),	Valparaiso,	Chili.
Cashman, Elmer W.,	Bendersville,	Pennsylvania.
Chambers, Geo. H.,	Philadelphia,	do.
Cook, Snow P., B.A. (Acadia),	Milton,	Nova Scotia.
Crawford, James R., Jr.,	Brownville,	Pennsylvania.
Crilly, John C.,	Allentown,	do.
Culp, John F.,	Philadelphia,	do.
Dalbey, Alvin D., A.B. (Central High School),	do.	do.
Dale, Frank,	Bellefonte,	do.
Diller, Theodore,	Lancaster,	do.
Dixon, Samuel G.,	Philadelphia,	do.
Donohue, Michael J., A.B.,	Waterbury,	Connecticut.
Dorland, Wm. A. N., A.B. (Central High School),	Philadelphia,	Pennsylvania.
Downing, Henry M.,	West Chester,	do.
Elmer, Albert W., A.B. (Griswold College),	Davenport,	Iowa.
Emerick, Charles E.,	Centre Hall,	Pennsylvania.
Fisher, John V.,	Williamstown,	do.
Fledderjohann, Henry E.,	New Bremen,	Ohio.
Flexer, John R.,	Allentown,	Pennsylvania.
Green, Edgar M., A.B. (Lafayette),	Easton,	do.
Green, Walter D., A.B. (Princeton),	Trenton,	New Jersey.
Gross, William D., Jr., A.B. (Univ. of Penna.),	Philadelphia,	Pennsylvania.

Digitized by Google

Hammond, Levi J.,	Dover,	Delaware.
Harmon, John B.,	Altoona,	Pennsylvania.
Henderson, William B.,	Lewistown,	do.
Hersh, Daniel G.,	East Greenville,	Ohio.
Hewetson, Halle L.,	St. Clairsville,	Maryland.
Hill, J. Heighe,	Locust Grove,	Pennsylvania.
Hillegass, John P., Jr.,	Pennsburg,	do.
Hoagland, Bonn W.,	Philadelphia,	do.
Hoban, Charles J.,	Scranton,	do.
Hoffman, J. Louis,	Cressona,	do.
Hoffman, Jacob Z., A.B.,	Maytown,	do.
Holly, William J., A.B. (Yale),	Philadelphia,	do.
Hopkins, Gerald C.,	do.	do.
Houser, Luther M.,	Houserville,	do.
Humiston, Franklin G., A.B. (Dartm.),	Cambridge,	Massachusetts.
Jameson, William B.,	Petrolia,	Pennsylvania.
Johnson, Edwin W.,	Stockton,	New Jersey.
Jones, Oliver B., Jr.,	Philadelphia,	Pennsylvania.
Kenney, Edward L., A.B (Lafayette),	Chicago,	Illinois.
Kerlin, Elijah I.,	Richmond,	Indiana.
Kilburn, John H.,	Woodstock,	New Brunswick.
Knowles, James H., A.B.,	Milton,	Nova Scotia.
Kynett, Harry H., A.B. (Wesleyan Univ.),	Philadelphia,	Pennsylvania.
Lainè, Damaso T.,	Navajas,	Cuba.
Lane, Samuel M.,	Orbisonia,	Pennsylvania.
Lee, Thomas G.,	Rochester,	New York.
Lemos, Odorico G. de,	Para,	Brazil.
Leopold, Isaac, B.S. (Univ. of Penna.),	Philadelphia,	Pennsylvania.
Lichty, Albert M.,	Elk Lick,	do.
Long, Wilson P.,	Mertztown,	do.
Lung, George A., A.B. (Univ. of Rochester),	Philadelphia,	do.
Lyons, Ray,	Lanesboro,	do.
Marin, Luis, B.S.,	Leon,	Nicaragua.
Marshall, George M., A.B. (Western Res. Univ.),	Painesville,	Ohio.
Matlack, Ellwood, A.B.,	Philadelphia,	Pennsylvania.
Mazarredo, Frederico de,	Cienfuegos,	Cuba.
Miller, Elijah,	Cold Spring,	New Jersey.
Miller, B. Frank B., A.M. (Western University),	Allegheny,	Pennsylvania.
Morris, Elliston J., A.B. (Univ. of Penna.),	Germantown,	do.
Morris, William L.,	Philadelphia,	do.
Morton, Samuel W.,	Linwood,	do.
Moyer, Sherman, G. T.,	Pottsville,	do.
McCausland, James R., Ph.G.,	Philadelphia,	do.
McFetridge, William C.,	do.	do.

Digitized by Google

Neuber, Samuel T., A.B. (Univ. of Penna.),	Philadelphia,	Pennsylvania.
Nock, Thomas O., Ph.G.,	Camden,	Delaware.
Novaes, Emygdio Dias,	Quelez,	Brazil.
Orbison, J. Harris, A.M. (Princeton),	Bellefonte,	Pennsylvania.
Otto, Joseph,	Key West,	Florida.
Parke, William E., A.B. (Princeton),	Parkesburg,	Pennsylvania.
Pascoe, Geo. Y., Jr., A.B. (Central High School),	Philadelphia,	do.
Pownall, Elmer E.,	Bridge Valley,	do.
Rath, Otto A.,	Fort Wayne,	Indiana.
Redmond, Henry,	Corpus Christi,	Texas.
Reynolds, Leon E.,	Portland,	Maine.
Riva, Fernando E.,	Havana,	Cuba.
Sartain, Paul J., A.B. (Univ. of Penna.),	Philadelphia,	Pennsylvania.
Schoales, Charles B.,	do.	do.
Schum, Frank L.,	Altoona,	do.
Seymour, Alfred M., A.B.,	Huntington,	Connecticut.
Sharp, Alexander A., A.B. (Dickinson),	Carlisle,	Pennsylvania.
Shimer, William S., A.B. (Central High School),	Philadelphia,	do.
Shoemaker, Harvey,	do.	do.
Shoemaker, Jesse G.,	do.	do.
Shoemaker, Levi I., A.B. (Yale),	Wilkes-Barre,	do.
Shoemaker, Samuel B., B.S. (Haverford),	Germantown,	do.
Smith, Allen J., A.B. (Penna.),	York,	do.
Snodgrass, O. Edmund,	do.	do.
Stevens, Arthur A., A.B. (Central High School),	Germantown,	do.
Tatum, Edward, A.B. (Yale),	New York City,	New York.
Teller, William H,	Philadelphia,	Pennsylvania.
Thompson, James B.,	Allegheny City,	do.
Thompson, William O.,	Summit Hill,	do.
Tomlin, Almer N.	Goshen,	New Jersey.
Wallace, Charles H,	New Castle,	Delaware.
Ward, E. Tillson, A.B. (Central High School),	Philadelphia,	Pennsylvania.
Weaver, W. Warren, A.B. (Penna.),	Hanover,	do.
Welker, Abram T.,	Hillegass,	do.
Weller, Elmer K.,	Trexlertown,	do.
Westcott, Thompson S., A.B. (Univ. of Penna.),	Philadelphia,	do.
White, R. Parks,	Ashland,	Ohio.
Williams, Walter S.,	Pittsburgh,	Pennsylvania.
Zentmayer, William,	Philadelphia,	do.

Digitized by Google

JUNE 15, 1886.

William H. Broughton,	Kingston,	Maryland.

Of the foregoing there were from:

Brazil,	1	Massachusetts,	1
Chili,	1	New Brunswick,	1
Connecticut,	2	New Jersey,	8
Cuba,	3	New York,	3
Delaware,	3	Nicaragua,	1
Florida,	1	Nova Scotia,	2
Illinois,	1	Ohio,	4
Indiana,	2	Pennsylvania,	80
Iowa,	1	Texas,	1
Maine,	1		
Maryland,	2	Total	119

MAY 1, 1886.

Doctor of Dental Surgery.—

Adams, James E.,	Paris,	Illinois.
Bennefeld, Albert F.,	Berlin,	Germany.
Borden, Walter A.,	Allentown,	New Jersey.
Bordner, Charles M.,	Berrysburg,	Pennsylvania.
Bradley, Wilmot V.,	New Haven,	Connecticut.
Campbell, John,	Philadelphia,	Pennsylvania.
Chambers, William M.,	do.	do.
Cookingham, George T.,	Lee,	Massachusetts.
Danel, William W.,	Freeport,	Illinois.
Davis, Charles H.,	New Ipswich,	New Hampshire.
Dennison, James S.,	Geneva,	New York.
Dumas, Victor,	Santiaga,	Cuba.
Ensign, Charles L.,	Norwich,	New York.
Griffin, Frank R.,	Bellefontaine,	Ohio.
Hawke, Wm. Wetherill,	Hopewell,	New Jersey.
Hills, J. Bartlett,	Washington,	District of Columbia.
Howland, Frank H.,	Worcester,	Massachusetts.
Huber, William S.,	Lebanon,	Pennsylvania.
Hurlburt, H. Duane,	St. Albans,	Vermont.
Lamoutte, Luis Alfredo,	Ponce,	Porto Rico.
Long, W. Laurence,	Honeybrook,	Pennsylvania.
McIntyre, Alexander A.,	Summerside,	Pr. Edward's Island.
Maercklein, Bernhard G.,	Milwaukee,	Wisconsin.
Maercklein, Reinhold E.,	Milwaukee,	do.
Miller, Louis J.,	Huntingdon,	Pennsylvania.
Moore, U. S. Grant,	Shamokin,	do.
Nittinger, Alfred,	Philadelphia,	do.
Paranhos, Jose,	Porto Alegre,	Brazil.
Pereira, Francisco,	Pelotas,	do.
Quick, E. Payson,	Philadelphia,	Pennsylvania.
Raupp, Octavio B.,	Porto Alegre,	Brazil.
Rees, Chas. Hanson,	Winchester,	Kentucky.
Richter, Charles H.,	Milwaukee,	Wisconsin.
Schwarzschild, Ferdinand J.,	San Francisco,	California.

Digitized by Google

Seelye, Henry G.,	Middlebury,	Connecticut.
Shannon, George H.,	Watertown,	New York.
Sumner, Frederick I.,	Norwich,	do.
Upp, Charles W.,	Freeport,	Illinois.
Webb, Albert T.,	Freeport,	do.
Wible, John H.,	Greensburg,	Pennsylvania.
Wiggins, Leslie M.,	Central Norton,	New Brunswick.

SUMMARY.

Brazil,	3	New Hampshire,	1
California,	1	New Jersey,	2
Connecticut,	2	New York,	4
Cuba,	1	Ohio,	1
District of Columbia,	1	Pennsylvania,	10
Germany,	1	Porto Rico,	1
Illinois,	4	Prince Edward's Island,	1
Kentucky,	1	Vermont,	1
Massachusetts,	2	Wisconsin,	3
New Brunswick,	1		41

The following list, accidentally omitted from the Catalogue of 1885–86, is here inserted to complete the record.

MAY 1, 1885.

Doctor of Dental Surgery.—

Allen, William Y.,	Boston, Mass.
Bailey, Edgar C.,	Macon, Ga.
Bellis, Edward R.,	Richmond, Ind.
Bromley, Frederick W., M.D.,	Palmyra, Wisc.
Bruns, Augustus,	Hanover, Germany.
Carter, Ditson P.,	Proctorville, Ohio.
Couto, William S.,	Saó Paulo, Brazil.
Crissman, Ira B.,	Freeport, Ill.
Dayton, Chas. Elmer,	Stamford, Conn.
Dick, George W. C.,	Sumter, S. C.
Dickinson, Edward B.,	Chicopee, Mass.
Ehni, Robert F.,	Toledo, Ohio.
Englert, G. Ægidius,	Orange, N. J.
Erskine, George W.,	Philadelphia.
Fergus, Oswald, L.D.S.,	Glasgow, Scotland.
Fisher, Frank W.,	Syracuse, N. Y.
Fridman, Andreas,	Dalarne, Sweden.
Gibbons, Clifford,	Brighton, England.
Gibbons, John F.,	Brighton, England.
Ginoyer, Louis,	Saó Paulo, Brazil.
Hayward, Thaddeus T.,	Minneapolis, Minn.
Hertz, John C.,	Hazelton.
Howe, Edward D.,	Hollis, N. H.
Hugenschmidt, Arthur C.,	Paris, France.

Digitized by Google

Jack, L. Foster, M.D.,	Philadelphia.
Jones, Victor S.,	Bethlehem.
Knapp, Frank C.,	Bradford, N. Y.
Long, William R.,	Connellsville.
Marsh, Adelbert W.,	Constantia, N. Y.
Mercer, Charles J.,	Kennet Square.
Milliken, George G.,	Philadelphia.
Milliken, Charles T.,	Sacramento, Cal.
Munroe, Grafton,	Annapolis, Md.
Parker, Edwin G.,	Watertown, N. Y.
Peardon, Edwin,	Palmyra, Wis.
Roett, Clarence F.,	Barbadoes, W. I.
Roque, José,	Matanzas, Cuba.
Ryan, George B.,	Sussex, Canada.
Schmidt, John A.,	Ilion, N. Y.
Shaw, Louis,	Philadelphia.
Smith, Chas. Elmer,	Davenport, Iowa.
Smith, W. Albert,	Salida, Col.
Southwell, Claude A.,	Milwaukee, Wis.
Southworth, Ernest L.,	Sacramento, Cal.
Stapleton, J. Walter,	Winchester, Ky.
Starr, R. Walter,	Philadelphia.
Stine, Henry M.,	Harrisburg.
Wells, George H.,	N. Hatfield, Mass.
Winner, William L.,	Williamsport.

SUMMARY.

Barbadoes, W. I.,	1	Kentucky,	1
Brazil,	2	Maryland,	1
California,	2	Massachusetts,	3
Canada,	1	Minnesota,	1
Colorado,	1	New Hampshire,	1
Connecticut,	1	New Jersey,	1
Cuba,	1	New York,	5
England,	2	Ohio,	2
France,	1	Pennsylvania,	11
Georgia,	1	Scotland,	1
Germany,	1	South Carolina,	1
Illinois,	1	Sweden,	1
Indiana,	1	Wisconsin,	8
Iowa,	1		
		Total,	49

HONORS.

In the College Faculty, at the examination for Degrees.—

In the Arts—

Of the *First Class*, to Howard James Truman.

Of the *Second Class*, to George Christian Eisenhardt, Jacob Martin Rommel, Jr., and Irvin Poley Knipe.

Digitized by Google

Of the *Third Class*, to George W. Wilgus, Charles Elmer Woodruff, Edward Miller Jefferys, Albert William Mainfold, James Burnet Crane, Robert Murray Hogg, and Walter Moore Shaw.

In the Towne Scientific School—

POST SENIORS.

Of the *Second Class*, to Lino Francesco Rondinella, Herman Herzog, Jr., and Stephen Harris.

Of the *Third Class*, to Samuel McMurray Smith, Hermann Siegfried Hering, Herbert Coleman Whitaker, William Henry Bower, and David Lincoln Luke.

SENIORS.

Of the *Second Class*, to Charles Herman Haupt.

Of the *Third Class*, to William Augustus Bigler, Amos Peaslee Brown, Jr., Henry Davis Todd, Jr., Richard McCall, Edward Arnott Pearson, Harry Randolph Stoops, and Samuel Jennings White.

In the Course in Philosophy—

Of the *Third Class*, to Joseph Sailer, Jr.

At the Annual examination DISTINCTIONS of the *First Class*—

In the Arts to—

Juniors—William Romaine Newbold, George Flowers Stradling, and George Wharton Pepper.

Sophomores—Horace Clark Richards.

In the Faculty of Medicine for graduation theses—

MAY 1, 1886.

Distinguished Merit, to—

Walter D. Green.

Honorable Mention, to—

William E. Parke, Elmer K. Waller, William A. Carey.

The following graduates of the Medical Department, Class of 1886, were appointed to Hospitals on competitive examinations. They are alphabetically arranged—

To the University Hospital—

F. A. Achey,
T. S. Westcott,
Damaso T. Lainè,

To the Philadelphia Hospital—

Wm. C. Albertson,
Theodore Diller,
Michael J. Donohue,
Wm. A. N. Dorland.
Wm. B. Jameson,
I. Kerlin,
Ellwood Matlack,
Sherman G. T. Moyer,
Wm. E. Parke,
Alfred M. Seymour,
Wm. S. Shimer,
Allen J. Smith.

Digitized by Google

To the St. Mary's Hospital—
John N. Bayliss, Charles J. Hoban.
John C. Crilly,

To the St. Joseph's Hospital—
George M. Marshall.

To the Children's Hospital—
E. I. Kerlin, Harvey Shoemaker.

To the St. Luke's Hospital, Bethlehem—
Joseph Otto, J. Louis Hoffman.

The following were appointed to Hospitals, at which an examination is not made the basis of appointment.

To the Pennsylvania Hospital—
Fred. A. Packard, Samuel B. Shoemaker.

To the Episcopal Hospital—
Thomas Budd Bradford, Nathan P. Grimm,
Harry C. Deaver, Elliston J. Morris.
Walter J. Freeman,

To the Germantown Hospital—
Charles W. Burr, J. Lewis Ziegler.

To the Miner's Hospital, Scranton—
Horace E. Merkel.

To the Presbyterian Hospital—
Wm. R. Cochrane, Samuel W. Morton.
Walter D. Green,

To the German Hospital—
William D. Gross, Otto A. Rath.

In the Faculty of Dentistry, at the examination for Degrees—Honorable Mention for averages, exceeding 90, to—

William S. Huber,	Pennsylvania.
Albert T. Webb,	Illinois.
John Campbell,	Pennsylvania.
Bernhard G. Maercklein,	Wisconsin.
George H. Shannon,	New York.
Wilmot V. Bradley,	Connecticut.
Leslie M. Wiggins,	New Brunswick.
Chas. W. Upp,	Illinois.
E. Payson Quick,	Pennsylvania.

PRIZES.

June 15, 1886.

I. In the College Faculty—

1. For the best Essay in Intellectual and Moral Philosophy by a member

Digitized by Google

of the Junior Class. Subject: "A Criticism of Locke's Theory of Perception," to *William Romaine Newbold;* with honorable mention of *John McArthur Harris.*

2. For the best examination on the "Oration of Æschines against Ctesiphon" by the members of the Junior Class, to *James Alan Montgomery,* with honorable mention of *George Flowers Stradling.*

3. For the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents, equally to *Charles Peabody* and *David Bowen Salter;* with honorable mention of *Matthew James Hyndman.*

4. For the best examination on the "Lectures on Quaternions" given to the Voluntary Junior Class, First Prize to *Georg Flowers Stradling;* Second Prize to *John Dawson Hawkins.*

5. A prize of twenty dollars for the best Essay in History and English Literature by a member of the Junior Class. Subject: "Nathaniel Hawthorne," to *James Alan Montgomery.*

6. For the best Declamation by a member of the Sophomore Class, to *Lightner Witmer;* with honorable mention of *Milton J. Greenman, Theodore William Kretschmann,* and *James Barton Longacre.*

7. For the best special examinations in the Elements of Latin Prose Composition, by Freshmen on entering College, First Prize to *Arthur Richard Harcourt Morrow;* Second Prize to *Dickinson Sergeant Miller.*

8. For the best special examinations in Greek Prose Composition by Freshmen on entering College, First Prize to *Arthur Richard Harcourt Morrow;* Second Prize to *Walter Scott.*

9. To a member of the Scientific Classes for improvement in Drawing and general good conduct and application, to *Edward Christman Knight* of the Freshman Class.

II. The Society of the Alumni Prizes—

1. For the best Latin Essay, by a member of the Graduating Class, to *George Christian Eisenhardt.*

2. For the best Original Declamation by a member of the Junior Class, equally to *Oliver Huckel* and *Joseph Siegemund Levin.*

III. The Henry La Barre Jayne Prize for the best English Composition by a member of the Freshman Class, to *Charles Newton Clement Brown,* with honorable mention of *Samuel McCune Lindsay,* for their Essays on "John Quincy Adams."

IV. The Joseph Warner Yardley Prize, founded by the Class of 1877, in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class, to *Robert Murray Hogg,* for his Essay on "Socialism."

V. The Prize founded by D. Van Nostrand, Esq., for the member of

Digitized by Google

the Junior Class in Civil Engineering who attains the highest general average of scholarship, to *Joseph Christian Wagner*.

II. In the Faculty of Law—

1. The Sharswood Prize to *Lewis L. Smith* for his Essay, entitled "Negotiable Paper as Collateral."

2. The Meredith Prize to *Thomas C. Wilson* for his Essay, entitled "The Fourth Section of the Statute of Frauds."

3. The Faculty Prize for the best written examination with all the Professors to *Lindley Miller Garrison*, of the Senior Class.

III. In the Faculty of Biology—

The Junior Prize for the best dissected preparations, to, first, *Milton J. Greenman;* second, *Robert S. Maison*.

IV. In the Faculty Auxiliary to Medicine—

The George B. Wood Prize to *Thomas G. Lee*, M.D., for his Thesis on "The Anther," with honorable mention of *John Nathaniel Baylis*, M.D., for his Thesis on "The Development of the Ordinary Fowl (*Gallus domesticus*)."

May 1, 1886.

V. By the Faculty of Medicine—

1. The "*Medical News* Prize" of One Hundred Dollars, for sufficiently meritorious thesis, was divided between *Allen J. Smith*, for his thesis on Micrococcus of Sewage, and *Edgar M. Green*, for his thesis on the Value of Brücke's Method for the Removal of Intercepting Substances from Urine in Testing for Glucose.

2. Alumni Prize of Fifty Dollars, to *Elijah I. Kerlin*, for his thesis on the Hygiene of Lecture Rooms and Hospitals.

3. The "Morbid Anatomy Prize," of a Zentmayer's Histological Microscope, to *Geo. M. Marshall*, for his thesis on A Study of Tumors removed at the Surgical Clinic of the Hospital of the University of Pennsylvania, from March, 1885, to June, 1886.

4. The "Henry M. Beates" Prize of Fifty Dollars, for the highest general average attained in examinations, to *Edgar M. Green*.

5. "Demonstrators' Prizes," by the Demonstrator of Surgery, Dr. J. Wm. White. The First Prize for Proficiency in Bandaging and Operating, a copy of Agnew's Surgery, to *R. Parks White;* Second Prize, a pocket case of instruments, to *Damaso T. Lainé*.

6. "Anatomical Prizes," by Dr. John B. Deaver. A Prize of Thirty Dollars to the member of the graduating class who shall present the best record of Anomalies found in the Anatomical Room, to *Thomas D. King*, of Ohio.

Digitized by Google

SUMMARY.

Professors, Lecturers and Instructors.

College Department,	42	
Department of Medicine, including Hospital Service,	57	
" " " (Auxiliary Faculty),	5	
" " Dentistry,	26	
" " Veterinary Medicine,	13	
" " Law,	4	
" " Philosophy,	19	
" " Biology,	8	
Emeritus Professors,	6	
		180
Repeated,		44
Total,		136

Students.

College Department,	361	
Department of Medicine,	406	
" " " (Auxiliary Faculty),	8	
" " Dentistry,	111	
" " Veterinary Medicine,	49	
" " Law,	129	
" " Philosophy,	5	
" " Biology (excluding College Department),	14	
Post-Graduate Course in Law,	12	
		1095
Repeated,		7
Total,		1088

Digitized by Google

CONTENTS.

	Page.
Ground Plan of the University.—The Buildings and Property,	3
Calendar,	4–6
University of Pennsylvania,	7–13
Historical Sketch of the Foundation of the University; the several Charters and Acts of Assembly regulating its government,	7–12
Departments of the University,	13
Trustees,	14–15
Chairmen of Standing Committees,	15
Officers,	16–23
College Department,	24–62
Faculty,	24–25
Instructors,	25
Graduates,	26
Post-Seniors,	26
Undergraduates,	26–34
Seniors,	26–28
Juniors,	28–29
Sophomores,	29–31
Freshmen,	31–32
Course in Music,	32
Special Students,	33
Partial Students,	33–34
Subdivision of Faculty and Courses,	35
Degrees,	35
Public Lectures,	35–36
Fees,	36
Scholarships,	36–37
Annual Examinations,	37
Prizes,	37–39
Societies,	39

Digitized by Google

The Course in Arts, ... 39–42
Entrance Examination, ... 39–40
Course of Study, ... 40–42
Freshman Class, ... 40
Sophomore Class, ... 40–41
Junior Class, ... 41
Senior Class, ... 41–42
Partial Courses, ... 42
Degrees, ... 42
The Courses in the Towne Scientific School, ... 42–52
Object, Studies and Courses, ... 42–43
Entrance Examinations, ... 43
Course of Study (Preliminary), ... 43–44
Freshman Year, ... 43–44
Sophomore Year, ... 44
Technical Courses, ... 44–49
Junior Year, ... 44–46
Studies pursued by whole class, ... 44
1. Studies pursued by the Chemical Section, . . . 44
2. Studies pursued by the Metallurgical and Mining Section, ... 45
3. Studies pursued by the Civil Engineering Section, ... 45
4. Studies pursued by the Dynamical Engineering Section, ... 45
5. Studies pursued by the Architectural Section, . 46
Senior Year, ... 46–49
Studies pursued by the Whole Class, ... 46
1. Studies pursued by the Chemical Section, . . . 46
2. Studies pursued by the Metallurgical and Mining Section, ... 46–47
3. Studies pursued by the Civil Engineering Section, ... 47
4. Studies pursued by the Dynamical Engineering Section, ... 47
5. Studies pursued by the Architectural Section, . 48
Post-Senior Class, ... 48–49
Studies pursued by the Whole Class, ... 48
1. Studies pursued by the Chemical Section, . . . 48
2. Studies pursued by the Metallurgical and Mining Section, ... 48

Digitized by Google

3. Studies pursued by the Civil Engineering Section, ... 48–49
4. Studies pursued by the Dynamical Engineering Section, ... 49
5. Studies pursued by the Architectural and Drawing Section, ... 49
Methods of Study, ... 50–52
Special Courses, ... 52
Library, ... 52
Degrees, ... 52
A Course in Philosophy for Undergraduates, ... 53–56
Course of Instruction, ... 53
Entrance Examinations, ... 53
Course of Study, ... 53–55
Freshman Class, ... 53
Sophomore Class, ... 53–54
Junior Class, ... 54
Senior Class, ... 54–55
Mode of Instruction, ... 55–56
The Course in Finance and Economy in the Wharton School, . . . 56–60
Aim and Scope of School, ... 56–57
Library, ... 57
Course of Study, ... 57–59
Junior Year, ... 57–58
Senior Year, ... 58–59
Mode of Instruction, ... 59
Supplementary Lectures, ... 59–60
Examinations for Admission and Advanced Standing, . . 60
Degrees, ... 60
Roster of Courses of Study in the College Faculty, ... 61
The Course in Music, ... 62
DEPARTMENT OF MEDICINE, ... 63–99
Faculty, ... 63
Clinical Professors, ... 63
Assistant Professor, ... 64
Auxiliary Professors, ... 64
Lecturers and Demonstrators, ... 64–65
Assistants in Chemical Laboratory, ... 65
Assistant Demonstrators of Anatomy, ... 66
Non-Resident Examiners, ... 66
Hospital Staff, ... 66–67
Dispensary Service, ... 67–68

Digitized by Google

Matriculates, ... 68–78
Fourth Year, ... 68
Third Year, ... 69–71
Second Year, ... 71–75
First Year, ... 75–78
Special Students, ... 78
Organization of the School, ... 79
Admission, ... 79–80
Course of Study, ... 81
Outline of the Course, ... 82–83
First Year, ... 82
Second Year, ... 82
Third Year, ... 82–83
Fourth Year, ... 83
Text-Books, ... 84
Order of Lectures, Daily, ... 85–88
First Year, ... 85
Second Year, ... 86
Third Year, ... 87
Fourth Year, ... 88
Roster of Bedside Instruction and Special Clinics for Students of the Third Year, Session 1886–87, ... 89–90
Special Roster of Laboratory Instruction in Histology, Biology, Osteology, and Syndesmology, for students of the First year, Session 1886–87, ... 90
Graduation, ... 91
Additional Instruction, ... 91
Arrangement of Sessions, ... 91
Expenses, ... 91–93
Scholarships, ... 93
Facilities for Instruction, ... 93–96
The Laboratory Building, ... 96–97
The University Hospital, ... 97
Other Hospitals and Hospital Clinics, ... 97–98
Medical Societies, ... 98
Prizes, ... 98–99
Society of the Alumni, ... 99
Officers for 1886, ... 99
Auxiliary Department of Medicine, ... 100–104
Faculty, ... 100
Matriculates, ... 100
Purpose of Department, ... 100

Digitized by Google

Fees, ... 101
Degrees, ... 101
Special Students, ... 101
Prizes, ... 101
Museum, ... 102
Course of Study, ... 102–103
Text-Books and Works of Reference, ... 103–104
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, ... 105–107
Board of Managers and Chairmen of Standing Committees, 105
Capacity and General Regulations, ... 106–107
Summary of Operations in 1885, ... 107
DEPARTMENT OF DENTISTRY, ... 108–117
Faculty, ... 108
Clinical Instructors, ... 108
Demonstrators, ... 108
Matriculates, ... 109–111
Second Year, ... 109–110
First Year, ... 110–111
Special Students, ... 111
Course of Study, ... 111–113
First Year, ... 111
Second Year, ... 112
Course of Instruction, ... 113–114
Clinical Instruction, ... 114
Infirmary and Laboratory, ... 115
The Stillé Medical Library, ... 115
Museum and Cabinets, ... 115
Sessions, ... 115
Examinations, ... 115–116
Degrees, ... 116
Text-Books and Works of Reference, ... 116–117
DEPARTMENT OF VETERINARY MEDICINE, ... 118–128
Faculty, ... 118
Demonstrators, ... 118
Matriculates, ... 119–120
Third Year, ... 119
Second Year, ... 119
First Year, ... 119
Special Students, ... 120
Aim and Facilities of the Department, ... 110
Requisites for Admission, ... 120
Course of Instruction, ... 120–121

Digitized by Google

Chemistry, ... 121
Materia Medica and Pharmacy, ... 121–222
Physiology, ... 122
Botany, ... 122–123
Zoology, ... 123
Anatomy, ... 123–124
Histology, ... 124
Forging, ... 124
Therapeutics, ... 124
General Pathology and Morbid Anatomy, ... 124–125
Internal Pathology and Contagious Diseases, ... 125
Surgical Pathology, ... 125–126
Obstetrics, ... 127
Zootechnics and Hygiene, ... 127
Museum, ... 127–128
Hospital, ... 128
Farriery, ... 128
Examinations and Degrees, ... 128
Fees, ... 128
Department of Biology, ... 129-141
Faculty, ... 129
Matriculates, ... 129
First Year, ... 129
Second Year, ... 129
Aim and Facilities of the Department, ... 130
Course for Students in the College Department, ... 130
General Course in Biology, ... 130–131
First Year, ... 131
Second Year, ... 131
Mode of Instruction, ... 131–133
Instruction for Graduate Students, ... 133
Investigation and Advanced Instruction, ... 133
Prizes, ... 133
Fees, ... 133–134
Admissions, Examinations and Degrees, ... 134
Examination Questions, June, 1886, ... 134–141
By Professor Leidy, ... 134–135
" Dr. Dolley, ... 136–137
" Professor Jayne, ... 137–138
" Professors Sharp and Jayne, ... 138–139
" Dr. Dolley, ... 139–140
" Professor Rothrock, ... 140–141

Digitized by Google

DEPARTMENT OF LAW, ... 142–150
Faculty, ... 142
Matriculates, ... 142–145
Senior Class, ... 142–143
Junior Class, ... 143–145
Special Students, ... 145
Course of Study, ... 145
Fees, ... 146
Examinations and Degrees, ... 147
Prizes, ... 147
Admission to the Bar, ... 147–148
Examination Questions, May, 1886, ... 148–150
By Professor Hare, ... 148
" " Mitchell, ... 149
" " Parsons, ... 149–150
" " Bispham, ... 150
DEPARTMENT OF PHILOSOPHY, ... 151–156
Faculty, ... 151
Matriculates, ... 151
Object of Department, ... 151–152
Course of Study, ... 152
Fees, ... 152
Degrees, ... 152–153
Post-Graduate Course in Law, ... 153–156
Matriculates, ... 153
Aim of the Course, ... 153–155
Course of Study, ... 155–156
Admissions and Fees, ... 156
Examinations and Degrees, ... 156
Annual Examination Questions, ... 156
DEPARTMENT OF PHYSICAL EDUCATION, ... 157–158
LIBRARY, ... 159
FEES AND EXPENSES, ... 160–164
Tuition Fees, ... 160
Graduation Fee, ... 160
Certificate Fee, ... 161
College Department, ... 161
Medical Department, ... 161–162
Auxiliary Department of Medicine, ... 163
Department of Dentistry, ... 163
Department of Biology, ... 163
Department of Veterinary Medicine, ... 164

Digitized by Google

Department of Law, ... 164
Department of Philosophy, ... 164
Post-Graduate Course of Law, ... 164
Accommodations, ... 164
Expenses, ... 164
DEGREES, HONORS, AND PRIZES, 1885–86, ... 165–177
Honorary Degrees, ... 165
Degrees in Course—Certificates, ... 165–173
Honors, ... 173–175
Prizes, ... 175–177
Summary, ... 178

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

UNIVERSITY

OF

PENNSYLVANIA

CATALOGUE AND ANNOUNCEMENTS

1887-88

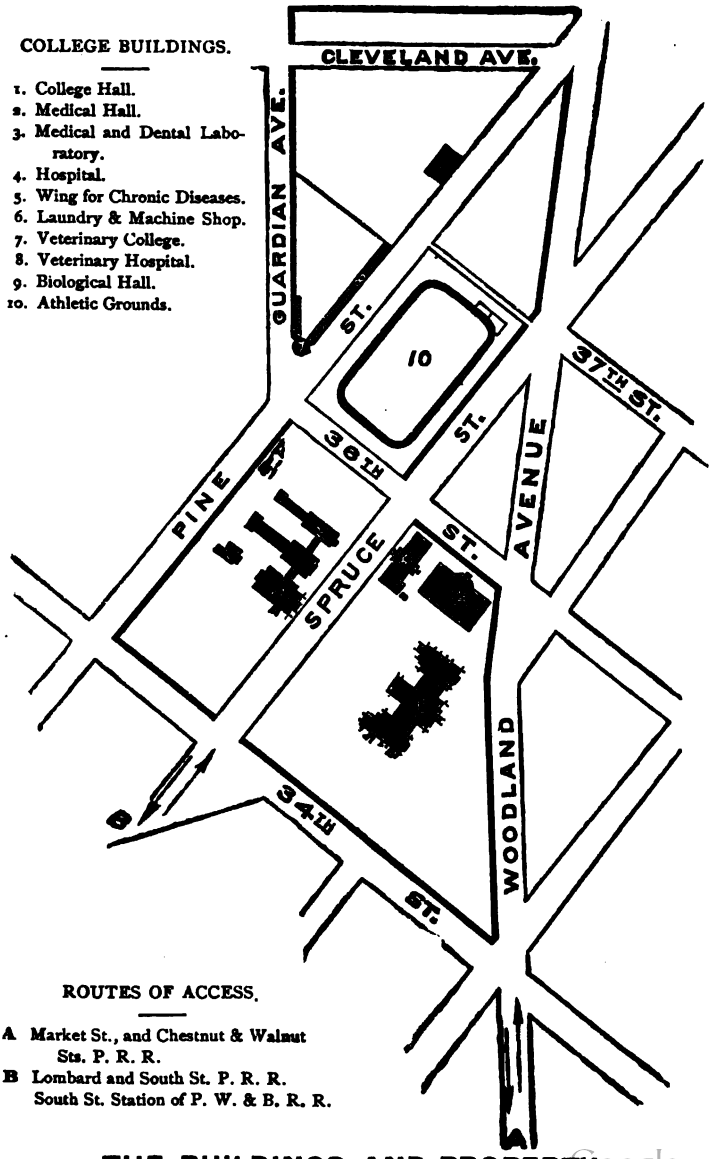
PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1887

Digitized by Google

Press of Globe Printing House, Philadelphia.

Digitized by Google

GROUND PLAN OF THE UNIVERSITY.



THE BUILDINGS AND PROPERTY.

Google

1888.

JANUARY.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	31	
W	4	11	18	25	.	
T	5	12	19	26	.	
F	6	13	20	27	.	
S	7	14	21	28	.	

FEBRUARY.

S	·	5	12	19	26	
M	·	6	13	20	27	
T	·	7	14	21	28	
W	1	8	15	22	29	
T	2	9	16	23	.	
F	3	10	17	24	.	
S	4	11	18	25	.	

MARCH.

S	·	4	11	18	25	
M	·	5	12	19	26	
T	·	6	13	20	27	
W	·	7	14	21	28	
T	1	8	15	22	29	
F	2	9	16	23	30	
S	3	10	17	24	31	

APRIL.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	.	
W	4	11	18	25	.	
T	5	12	19	26	.	
F	6	13	20	27	.	
S	7	14	21	28	.	

MAY.

S	·	6	13	20	27	
M	·	7	14	21	28	
T	1	8	15	22	29	
W	2	9	16	23	30	
T	3	10	17	24	31	
F	4	11	18	25	.	
S	5	12	19	26	.	

JUNE.

S	·	3	10	17	24	
M	·	4	11	18	25	
T	·	5	12	19	26	
W	·	6	13	20	27	
T	·	7	14	21	28	
F	1	8	15	22	29	
S	2	9	16	23	30	

1888.

JULY.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	31	
W	4	11	18	25	.	
T	5	12	19	26	.	
F	6	13	20	27	.	
S	7	14	21	28	.	

AUGUST.

S	·	5	12	19	26	
M	·	6	13	20	27	
T	·	7	14	21	28	
W	1	8	15	22	29	
T	2	9	16	23	30	
F	3	10	17	24	31	
S	4	11	18	25	.	

SEPTEMBER.

S	·	2	9	16	23	30
M	·	3	10	17	24	.
T	·	4	11	18	25	.
W	·	5	12	19	26	.
T	·	6	13	20	27	.
F	·	7	14	21	28	.
S	1	8	15	22	29	.

OCTOBER.

S	·	7	14	21	28	
M	1	8	15	22	29	
T	2	9	16	23	30	
W	3	10	17	24	31	
T	4	11	18	25	.	
F	5	12	19	26	.	
S	6	13	20	27	.	

NOVEMBER.

S	·	4	11	18	25	
M	·	5	12	19	26	
T	·	6	13	20	27	
W	·	7	14	21	28	
T	1	8	15	22	29	
F	2	9	16	23	30	
S	3	10	17	24	.	

DECEMBER.

S	·	2	9	16	23	30
M	·	3	10	17	24	31
T	·	4	11	18	25	.
W	·	5	12	19	26	.
T	·	6	13	20	27	.
F	·	7	14	21	28	.
S	1	8	15	22	29	.

1889.

JANUARY.

S	·	6	13	20	27	
M	·	7	14	21	28	
T	1	8	15	22	29	
W	2	9	16	23	30	
T	3	10	17	24	31	
F	4	11	18	25	.	
S	5	12	19	26	.	

FEBRUARY.

S	·	3	10	17	24	
M	·	4	11	18	25	
T	·	5	12	19	26	
W	.	6	13	20	27	
T	·	7	14	21	28	
F	1	8	15	22	.	
S	2	9	16	23	.	

MARCH.

S	·	3	10	17	24	31
M	·	4	11	18	25	.
T	·	5	12	19	26	.
W	·	6	13	20	27	.
T	·	7	14	21	28	.
F	1	8	15	22	29	.
S	2	9	16	23	30	.

APRIL.

S	·	7	14	21	28	
M	1	8	15	22	29	
T	2	9	16	23	30	
W	3	10	17	24	.	
T	4	11	18	25	.	
F	5	12	19	26	.	
S	6	13	20	27	.	

MAY.

S	·	5	12	19	26	
M	·	6	13	20	27	
T	·	7	14	21	28	
W	1	8	15	22	29	
T	2	9	16	23	30	
F	3	10	17	24	31	
S	4	11	18	25	.	

JUNE.

S	·	2	9	16	23	30
M	·	3	10	17	24	.
T	·	4	11	18	25	.
W	·	5	12	19	26	.
T	·	6	13	20	27	.
F	·	7	14	21	28	.
S	1	8	15	22	29	.

Digitized by Google

CALENDAR.

1887.	
Sept. 22, Thursday.	First Term begins: College Department.
Oct. 3, Monday.	Winter Session begins: Departments of Medicine, Law, Dentistry, Veterinary Medicine, Auxiliary Department of Medicine and Department of Biology. 10 A.M.
" 3, Monday.	First Term begins: Department of Music.
Nov. 24, Thursday.	Thanksgiving Day. (With Friday, 25th, holiday.)
Dec. 23, Friday.	Christmas Recess begins. 5 P.M.
1888.	CHRISTMAS RECESS.
Jan. 4, Wednesday.	Christmas Recess ends. 9 A.M.
" 31, Tuesday.	First Term ends: College Department (Chapel at 10 A.M.) and Department of Law.
Feb. 1, Wednesday.	Second Term begins: College Department and Departments of Biology and Law.
" 22, Wednesday.	Washington's Birthday. Celebration in College Chapel, 10 A.M.
March 28, Wednesday.	Easter Recess begins: College Department. 5 P.M.
" 30, Friday.	Good Friday. (Legal Holiday.)
	EASTER RECESS.
April 4, Wednesday.	Easter Recess ends: College Department. 9 A.M.
" 16, Monday.	Final and Term Examinations begin: Departments of Medicine and Dentistry.
" 24, Tuesday.	Examination for Resident Physicians, University Hospital. 12 Noon.
May 1, Tuesday.	Annual Commencement: Departments of Medicine and Dentistry. 12 Noon.
" 2, Wednesday.	Spring Session opens: Department of Dentistry.
" 5, Saturday.	Senior Examinations, College Department, end.
" 7, Monday.	Spring Session opens: Department of Medicine. 11 A.M. Entrance Examination, Department of Medicine.
" 20, Friday.	Examinations begin: Department of Law and Auxiliary Department of Medicine.
" 31, Tuesday.	Second Term ends: Department of Law.

Digitized by Google

June	4, Monday.	Announcement of Results, Annual Examinations: College Department. 10 A.M.
"	6, Wednesday.	Annual Commencement: College Department, Departments of Law and Biology, and Auxiliary Department of Medicine. 11 A.M.
"	7, Thursday.	Entrance Examinations begin: College Department. 9 A.M. each day.

SUMMER VACATION.

Sept.	11, Tuesday.	Entrance Examinations begin: College Department. 9 A.M. each day.
"	17, Monday.	Introductory Course opens: Departments of Medicine and Dentistry. 11 A.M.
"	20, Thursday.	First Term begins: College Department and Department of Biology. 10 A.M.
"	26, Wednesday.	Competitive Examination for Medical Scholarships. 12 Noon.
"	27, Thursday.	Examinations for Admission to Advanced Standing, and Re-examinations of Undergraduates, Departments of Medicine and Dentistry. 12 Noon.
"	28, Friday.	Entrance Examination: Departments of Medicine and Veterinary Medicine. 12 Noon.
Oct.	1, Monday.	Winter Session opens: Departments of Medicine, Dentistry and Veterinary Medicine. 12 Noon.
"	1, "	First Term begins: Department of Law, Department of Music and Auxiliary Department of Medicine.
Nov.	29, Thursday.	Thanksgiving Day (with Friday, 30th, holiday).
Dec.	21, Friday.	Christmas Recess begins. 5 P.M.

1889. CHRISTMAS RECESS.

Jan.	3, Thursday.	Christmas Recess ends. 9 A.M.
"	31, Thursday.	First Term ends: College Department (Chapel at 10 A.M.) and Department of Law.

Digitized by Google

University of Pennsylvania.

A pamphlet, called: *Proposals Relative to the Education of Youth in Pennsylvania*, written in 1749 by Dr. FRANKLIN, led to an association, by certain citizens of Philadelphia, for the purpose of founding a School on the lines suggested by that wise counsellor. Over two thousand pounds, equivalent to at least forty thousand dollars at the present time, were raised; a building, which had been erected to accommodate the thronged congregations of the celebrated Whitfield, was purchased; and in 1751 the Academy, consisting of an English, a Mathematical, and a Latin School, each under a Master, with subordinate tutors and ushers, was formally opened. So successful was the undertaking that in two years the Trustees applied to the Proprietaries for a Charter, which was thus granted: —

THOMAS PENN and RICHARD PENN, true and absolute proprietors and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent, and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumstead, Thomas White, William Cole-

Digitized by Google

man, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favouring such pious, useful, generous, and charitable designs, hoping, through the favour of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do*, for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others, as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania. . . . . .

In witness whereof, we have caused these our letters to be made patent; in the twenty-seventh year of the reign of our sovereign lord, George the second, who now is king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-three."

Under the skillful training of the learned Rev. William Smith the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring Collegiate Degrees. The petition was granted substantially as follows:

Digitized by Google

Thomas Penn and Richard Penn, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting:

And whereas the said trustees have, ... represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well constituted seminaries, youth are entitled to their first *degree. Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, ... to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and the English tongue, which Provost, Vice-Provost, and Professors, so constituted and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania;* and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and charitable school: *Provided always*, That the said trustees, the Provost, and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. . . . . excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania, to qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties

Digitized by Google

above mentioned, any thing in this provision to the contrary notwithstanding . . . . *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M.A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M.A., to be the first and present Vice-Provost of the same . . . . *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, ... to admit any the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. . . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any such degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy . . . . . .

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five.

The First Commencement was held May 17th, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times which followed, the Provost, Mr. Smith, was a Tory of so pronounced a type that he was thrown into prison by the Legislature; but, in faithfulness to his sworn duties as Provost, he received his classes in gaol, and continued his instructions to them there while still a prisoner. He was set at liberty, however, for the purpose of going to England to make a personal appeal to the king, and his kindly reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bestead they sent him back to England to raise funds for an endowment. It happened that King's College (now

Digitized by Google

Columbia) in New York was in similar straits and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them," and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all churches, and succeeded in raising a very considerable endowment for each college.

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler, D.D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the provost's, collection, in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion. It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind; and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied."

A committee having been appointed to frame a fundamental *Resolve* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present

Digitized by Google

wide and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the church of England, or those dissenting from them (*in any future election to the principal offices mentioned in the aforesaid letter*), be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion, than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College in the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follow:

First. That the name of the institution be "*The University of Pennsylvania*," and that it be stationed in the city of Philadelphia.

Second. That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the university of Pennsylvania; and that the governor shall be president.

SECT. 2. *And be it further enacted*, That the said twenty-four persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance for ever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said university shall at all times be stationed in the city of Philadelphia.

Thus established, the University has advanced with the times, and now comprises the following departments: —

Digitized by Google

THE COLLEGE DEPARTMENT, including
- THE COURSE IN ARTS,
- THE TECHNICAL COURSES IN SCIENCE,
  (The Towne Scientific School),
- A COURSE IN PHILOSOPHY FOR UNDERGRADUATES,
- THE COURSE IN FINANCE AND ECONOMY,
  (The Wharton School),
- THE COURSE IN MUSIC.

THE DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF LAW.
THE AUXILIARY DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF DENTISTRY.
THE DEPARTMENT OF PHILOSOPHY.
THE DEPARTMENT OF VETERINARY MEDICINE.
THE DEPARTMENT OF BIOLOGY.
THE DEPARTMENT OF PHYSICAL EDUCATION.

Digitized by Google

PROVOST OF THE UNIVERSITY,

WILLIAM PEPPER, M.D., LL.D.,

President *pro tempore* of the Board of Trustees.

TRUSTEES.

THE GOVERNOR OF PENNSYLVANIA, *ex-officio* President of the Board.
REV. HENRY J. MORTON, D.D.,
FREDERICK FRALEY, LL.D.,
REV. CHARLES W. SCHAEFFER, D.D., LL.D.,
JOHN ASHHURST,
WILLIAM SELLERS,
J. VAUGHAN MERRICK,
RICHARD WOOD,
S. WEIR MITCHELL, M.D., LL.D.,
CHARLES C. HARRISON,
JAMES H. HUTCHINSON, M.D.,
REV. GEORGE DANA BOARDMAN, D.D.,
WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.,
WHARTON BARKER,
SAMUEL DICKSON,
JOHN SCOTT,
JAMES MACALISTER,
JOHN C. SIMS, JR.,
HENRY H. HOUSTON.
JOSEPH D. POTTS,
HON. HENRY REED,
SAMUEL W. PENNYPACKER.
RT. REV. OZI WILLIAM WHITAKER, D.D.,
JOHN BARNARD GEST.

REV. JESSE Y. BURK, Secretary, University.
WHARTON BARKER, Treasurer, 125 South Fourth-st.

Digitized by Google

CHAIRMEN OF STANDING COMMITTEES FOR THE YEAR 1887–8.

WAYS AND MEANS: . . . . . MR. HARRISON, 101 S. Front-st.
BUILDINGS, ESTATES AND PROPERTY: . MR. WOOD, 400 Chestnut-st.
LIBRARY: . . . . . DR. FURNESS, 222 West Washington Square.
DEPARTMENT OF ARTS: . . . . . MR. FRALEY, 1000 Walnut-st.
DEPARTMENT OF MEDICINE: . . . DR. MITCHELL, 1524 Walnut-st.
DEPARTMENT OF LAW: . . . . . MR. SCOTT, 3808 Chestnut-st.
DEPARTMENT OF SCIENCE: . . . . . MR. MERRICK, Roxboro'.
DEPARTMENT OF FINANCE AND ECONOMY: MR. BARKER, 125 S. Fourth-st.
DEPARTMENT OF VETERINARY MEDICINE: . . . DR. HUNT, 1300 Spruce-st.
DEPARTMENT OF PHYSICAL EDUCATION: . . . MR. DICKSON, 32 S. Third-st.
DEPARTMENT OF BIOLOGY: . . . . . MR. MERRICK, Roxboro'.

Digitized by Google

OFFICERS.*

	Residence.
WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY.	1811 Spruce-st.
E. OTIS KENDALL, LL.D., VICE-PROVOST.	3826 Locust-st.
JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.	1302 Filbert-st.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.	1800 Spruce-st.
FRANCIS A. JACKSON, A.M., Professor of the *Latin Language and Literature*.	University.
E. OTIS KENDALL, LL.D., THOMAS A. SCOTT Professor of *Mathematics*.	3826 Locust-st.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology and Mining*.	1008 Clinton-st.
P. PEMBERTON MORRIS, LL.D., Emeritus Professor of *Practice*, *Pleading*, and *Evidence at Law and in Equity*.	404 Locust-st.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics* and of the *Diseases of Women and Children*.	1331 Spruce-st.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.	3900 Spruce-st.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.	117 S. 20th-st.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica*, *Pharmacy*, and *General Therapeutics*, and Clinical Professor of *Nervous Diseases*.	1925 Chestnut-st.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence*, including *Toxicology*.	Landsdowne, Pa.

* Arranged, except Provost and Vice-Provost, in the order of accession to office.

Digitized by Google

CHARLES J. STILLÉ, LL.D.,
Emeritus JOHN WELSH CENTENNIAL Professor of *History* and *English Literature*. 2201 St. James's Place.

OSWALD SEIDENSTICKER, PH.D. (Göttingen), Litt. D.,
Professor of the *German Language and Literature*. 309 S. 40th-st.

JOHN G. R. McELROY, A.M.,
Professor of *Rhetoric* and the *English Language*. 115 S. 20th-st.

J. I. CLARK HARE, LL.D.,
Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, *Commercial*, and *Civil Law*. 118 S. 22d-st.

D. HAYES AGNEW, M.D., LL.D.,
JOHN RHEA BARTON Professor of *Surgery*, and Professor of *Clinical Surgery*. 1601 Walnut-st.

REV. ROBERT E. THOMPSON, D.D.,
JOHN WELSH CENTENNIAL Professor of *History* and *English Literature*. Wyncote, P.O.

FREDERICK A. GENTH, PH.D. (Marburg),
Professor of *Chemistry* and *Mineralogy*. 3937 Locust-st.

SAMUEL B. HOWELL, M.D.,
Professor of *Mineralogy* and *Geology*. 1513 Green-st.

GEORGE F. BARKER, M.D., PH.B.,
Professor of *Physics*. 3909 Locust-st.

LEWIS M. HAUPT, A.M., C.E.,
Professor of *Civil Engineering*. 107 N. 35th-st.

WILLIAM PEPPER, M.D., LL.D.,
Professor of the *Theory and Practice of Medicine* and of *Clinical Medicine*. 1811 Spruce-st.

WILLIAM GOODELL, M.D.,
Professor of *Clinical Gynæcology*. 500 N. 20th-st.

WILLIAM F. NORRIS, M.D.,
Honorary Professor of *Ophthalmology*, and Clinical Professor of *Diseases of the Eye*. 1526 Locust-st.

GEORGE STRAWBRIDGE, M.D.,
Clinical Professor of *Diseases of the Ear*. 1500 Walnut-st.

JAMES PARSONS, A.M.,
Professor of the Law of *Personal Relations* and *Personal Property*. 1534 Locust-st.

THOMAS W. RICHARDS, A.M.,
Professor of *Drawing* and *Architecture*. 4812 Fairmount Ave.

GEORGE A. KŒNIG, PH.D. (Heidelberg),
Professor of *Mineralogy* and *Metallurgy*. 3207 Summer-st.

SAMUEL P. SADTLER, PH.D. (Göttingen),
Professor of *Organic and Industrial Chemistry*. 204 N. 34th-st.

Digitized by Google

JAMES TYSON, M.D.,
Professor of *General Pathology* and *Morbid Anatomy*. 1506 Spruce-st.

LOUIS A. DUHRING, M.D.,
Clinical Professor of *Skin Diseases*. 1417 Spruce-st.

HUGH A. CLARKE, Mus. Doc.,
Professor of the *Science of Music*. 223 S. 38th-st.

Rev. FREDERICK A. MUHLENBERG, D.D., LL.D.,
Professor of the *Greek Language* and *Literature*. 4307 Walnut-st.

JOSEPH T. ROTHROCK, M.D., B.S.,
Professor of *Botany*. West Chester, Pa.

WILLIAM D. MARKS, Ph.B., C.E.,
WHITNEY Professor of *Dynamical Engineering*. 4304 Walnut-st.

THEODORE G. WORMLEY, M.D., LL.D.,
Professor of *Chemistry* and *Toxicology*. University.

JOHN ASHHURST, Jr., M.D.,
Professor of *Clinical Surgery*. 2000 W. De Lancey Place.

OTIS H. KENDALL, Ph.D.,
Assistant Professor of *Mathematics*. 3826 Locust-st.

CHARLES J. ESSIG, M.D., D.D.S.,
Professor of *Mechanical Dentistry* and *Metallurgy*. 1700 Locust-st.

EDWIN T. DARBY, M.D., D.D.S.,
Professor of *Operative Dentistry* and *Dental Histology*. 1513 Walnut-st.

MORTON W. EASTON, Ph.D.,
Professor of *Comparative Philology*, and Adjunct Professor of *Greek*. 224 S. 43d-st.

JAMES TRUMAN, D.D.S.,
Professor of *Dental Pathology*, *Therapeutics*, and *Materia Medica*. 3249 Chestnut-st.

FREDERICK A. GENTH, Jr., M.S.,
Assistant Professor of *Chemistry*. 4014 Chestnut-st.

RUSH SHIPPEN HUIDEKOPER, M.D., V.S. (Alfort),
Professor of *Veterinary Anatomy* and *Pathology*. 111 S. 20th-st.

EDMUND J. JAMES, Ph.D. (Halle),
Professor of *Finance* and *Administration*. 3722 Locust-st.

JOHN BACH McMASTER, A.M.,
Professor of *American History*. Chestnut Hill.

GEORGE TUCKER BISPHAM, A.M.,
Professor of *Equity Jurisprudence*. 402 Walnut-st.

ROBERT MEADE SMITH, M.D.,
Professor of *Comparative Physiology*. 332 S. 21st-st.

HORACE JAYNE, M.D.,
Professor of *Vertebrate Morphology*. 1826 Chestnut-st.

Digitized by Google

WILLIAM OSLER, M.D.,
Professor of *Clinical Medicine.* 1502 Walnut-st.

EDWARD T. BRUEN, M.D.,
Assistant Professor of *Physical Diagnosis.* 1814 Rittenhouse Square.

LOUIS STARR, M.D.,
Clinical Professor of *Diseases of Children.* 1922 Spruce-st.

WILLIAM L. ZUILL, M.D., D.V.S.,
Professor of *Surgical Pathology.* University.

REV. GEORGE S. FULLERTON, A.M., B.D.,
ADAM SEYBERT Professor of *Intellectual and Moral Philosophy.* 206 S. 37th-st.

EDWARD T. REICHERT, M.D.,
Professor of *Physiology.* University.

J. WILLIAM WHITE, M.D.,
Clinical Professor of *Genito-Urinary Diseases,* Director of *Physical Education,* Demonstrator of *Surgery,* and Assistant Surgeon in University Hospital. 1810 Rittenhouse Square.

REV. JOHN P. PETERS, PH.D.,
Professor of *Hebrew.* 4408 Chestnut-st.

JOHN A. RYDER, PH.D.,
Professor of *Comparative Embryology.* Media, Pa.

DANIEL G. BRINTON, M.D.,
Professor of *American Archæology* and *Linguistics.* 115 S. 7th-st.

REV. HERMANN V. HILPRECHT, PH.D. (Leipzig),
Professor of *Assyrian.* 1031 Walnut-st.

MORRIS JASTROW, JR., PH.D. (Leipzig),
Professor of *Arabic* and *Rabbinical Literature.* Germantown.

WILLIAM POWELL WILSON, M.D.,
Professor of *the Anatomy* and *Physiology of Plants.* University.

GREGORY B. KEEN, A.M.,
Librarian. 3237 Chestnut-st.

C. STUART PATTERSON, A.M.
Professor of the Law of *Real Estate* and *Conveyancing.* 38 S. 3d-st.

A. SYDNEY BIDDLE, A.M.,
Professor of *Practice, Pleading,* and *Evidence at Law; Criminal Law.* 208 S. 5th-st.

SAMUEL G. DIXON, M.D.,
Professor of *Hygiene.* 2015 Chestnut-st.

HENRY W. SPANGLER, Assistant Engineer U. S. N.,
Assistant Professor of *Dynamical Engineering.* 603 S. 42d-st.

CHARLES S. DOLLEY, M.D.,
Professor of *General Biology.* University.

Digitized by Google

ROLAND G. CURTIN, M.D.,
Lecturer on *Physical Diagnosis*, and Asst. Physician in University Hospital. 22 S. 18th-st.

CHARLES K. MILLS, M.D.,
Lecturer on *Mental Diseases*. 1911 Chestnut-st.

SAMUEL D. RISLEY, M.D.,
Instructor in *Ophthalmology*, and Ophth. Surgeon in University Hospital. 1722 Walnut-st.

DE FOREST WILLARD, M.D.,
Lecturer on *Orthopœdic Surgery*. 1818 Chestnut-st.

ADOLPH W. MILLER, M.D.,
Lecturer on *Materia Medica and Pharmacy*, and Instructor in *Practical Pharmacy*. 860 N. 5th-st.

JOHN MARSHALL, M.D., NAT.Sc.D. (Tübingen),
Demonstrator of *Practical Chemistry*. University.

GEORGE A. PIERSOL, M.D.,
Demonstrator of *Normal Histology*. 1110 Spring Garden-st.

HENRY F. FORMAD, M.D.,
Demonstrator of *Pathological Histology* and of *Morbid Anatomy*, Lecturer on *Experimental Pathology*, and Librarian of the Stillé Medical Library. 3535 Locust-st.

WALTER M. L. ZIEGLER, M.D.,
Instructor in *Otology*, and Aural Surgeon in University Hospital. 1418 N. 17th-st.

CARL SEILER, M.D.,
Instructor in *Laryngology*. 1346 Spruce-st.

ALBERT L. A. TOBOLDT, M.D.,
Assistant Demonstrator of *Practical Pharmacy*. 207 Vine-st.

HARRY R. WHARTON, M.D.,
Instructor in *Clinical Surgery*, and Assistant Surgeon in University Hospital, and Lecturer on the *Surgical Diseases of Children*. 1405 Locust-st.

RICHARD H. HARTE, M.D.,
Demonstrator of *Osteology*, and Assistant Surgeon in University Hospital. 332 S. 17th-st.

ROBERT HUEY, D.D.S.,
Lecturer on *Operative Dentistry*. 330 S. 15th-st.

WILLIAM DIEHL, D.D.S.,
Demonstrator of *Operative Dentistry*. 1513 Walnut-st.

JOHN B. DEAVER, M.D.,
Demonstrator of *Anatomy*, and Lecturer on *Topographical Anatomy*. 1610 Vine-st.

FRANCIS X. DERCUM, M.D.,
Instructor in *Nervous Diseases*. 636 N. 8th-st.

Digitized by Google

THOMAS R. NEILSON, M.D.,
Instructor in *Venereal Diseases*, and Lecturer on the *Anatomy of the Joints*. 346 S. 15th-st.

EDMUND W. HOLMES, M.D.,
Assistant Demonstrator of *Anatomy*. 1523 Green-st.

JUDSON DALAND, M.D.,
Instructor in *Clinical Medicine*. 319 S. 18th-st.

WILLIAM A. EDWARDS, M.D.,
Instructor in *Clinical Medicine*. 300 S. 13th-st.

EDWIN S. CRAWLEY, B.S.,
Instructor in *Mathematics*. University.

J. JUDSON EDWARDS, D.D.S.,
Demonstrator of *Mechanical Dentistry*. 3707 Powelton Ave.

HENRY A. WASMUTH, E.M.,
Instructor in *Mining*. 3709 Woodland Ave.

J. HENDRIE LLOYD, M.D.,
Instructor in *Electro-Therapeutics*. 200 S. 40th-st.

A. SYDNEY ROBERTS, M.D.,
Instructor in *Orthopædic Surgery*. 131 S. 15th-st.

GEORGE E. DE SCHWEINITZ, M.D.,
Prosector to the Chair of *Anatomy*. 1330 Spruce-st.

HENRY W. STELWAGON, M.D.,
Instructor in *Dermatology*. 1411 Spruce-st.

EDWARD P. CHEYNEY, A.M.,
Instructor in *History*, and *Latin*. 4301 Haverford-st.

ARTHUR W. GOODSPEED, B.A.,
Instructor in *Physics*. University.

ALEXANDER GLASS, V.S.,
Demonstrator of *Veterinary Therapeutics and Pharmacy*. 2006 Bainbridge-st.

WILLIAM L. TAYLOR, M.D.,
Instructor in *Gynæcology*. 1440 N. 12th-st.

GWILLYM G. DAVIS, M.D.,
Assistant Demonstrator of *Surgery*. 1817 Mt. Vernon-st.

GEORGE G. MILLIKEN, D.D.S.,
Assistant Demonstrator of *Operative Dentistry*. 3614 Walnut-st.

HUGO A. RENNERT, B.S., LL.B.,
Instructor in *French and German*. University.

LOUIS JACK, D.D.S.,
Lecturer on *Operative Dentistry*. 1533 Locust-st.

J. FOSTER KIRK, A.M.,
Lecturer on *History*. Germantown, Pa.

Digitized by Google

EDWARD MARTIN, M.D.,
Assistant Instructor of *Physical Education*, Instructor in *Operative Surgery* and Assistant Demonstrator of *Surgery*. 415 S. 15th-st

HOBART A. HARE, M.D.,
Instructor in *Physical Diagnosis*, Demonstrator of *Therapeutics* and Instructor in *Physiology*. 117 S. 22d-st.

W. FRANK HAEHNLEN, M.D.,
Assistant Demonstrator of *Normal Histology*. 1421 N. Broad-st.

JOHN K. MITCHELL, M.D.,
Instructor in *Clinical Medicine*. 1524 Walnut-st.

JAMES E. LODER, D.D.S.,
Assistant Demonstrator of *Operative Dentistry*. 3932 Locust-st.

BENJAMIN FRANKLIN, B.S., C.E.,
Instructor in *Civil Engineering*. 1710 N. 18th-st.

SAMUEL S. EVANS, B.S., C.E.,
Instructor in *Civil Engineering*. University.

FELIX E. SCHELLING, A.M.,
Instructor in *English*. 1924 Chestnut-st.

CHARLES HERMAN HAUPT, B.S.,
Assistant in *Civil Engineering*. 2102 De Lancey Place.

D. NEIL HARPER, B.S.,
Assistant in *Analytical Chemistry*. University.

SAMUEL BROWN WYLIE, A.M.,
Instructor in *Mathematics*. University.

CHARLES GILPIN, JR., A.M.,
Instructor in *Book-keeping*. 3447 Walnut-st.

GEORGE H. CHAMBERS, M.D.,
Assistant Demonstrator of *Normal Histology*. 739 N. 17th-st.

HENRY B. McFADDEN, D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry*. 3505 Hamilton-st.

JAMES McKEEN CATTELL, PH.D.,
Lecturer on *Psycho-physics*. 1334 Chestnut-st.

EDWIN ALANSON KELLEY,
Assistant in *Mammalian Anatomy*. University.

JAMES K. YOUNG, M.D.,
Assistant Demonstrator of *Surgery*. 222 S. 16th-st.

DAVID D. RICHARDSON, M.D.,
Assistant Demonstrator of *Anatomy*. 3256 Chestnut-st.

AMBLER TEES, JR., D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry*. 548 N. 17th-st.

Digitized by Google

JOSEPH W. WHITE, D.D.S.,
Assistant Demonstrator of *Operative Dentistry.* 3329 Powelton Ave.

BARTON C. HIRST, M.D.,
Lecturer on *Clinical and Operative Obstetrics*, and
Demonstrator of *Practical Obstetrics.* 1624 Pine-st.

HENRY W. CATTELL, M.D.,
Assistant Demonstrator of *Chemistry.* 3709 Spruce-st.

A. H. P. LEUF, M.D.,
Assistant Director of *Physical Education.* 210 S. 36th-st.

MILTON J. GREENMAN,
Assistant in *Biology.*

R. HAMILL D. SWING, D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry.* 674 N. 39th-st.

MILTON POWEL, D.D.S.,
Assistant Demonstrator of *Operative Dentistry,* 1513 Walnut-st.

FREDERICK W. AMEND, JR., D.D.S.,
Assistant Demonstrator of *Mechanical Dentistry.* 3212 Market-st.

JOHN H. MUSSER, M.D.,
Instructor in *Clinical Medicine.* 3705 Powelton Ave.

SIMON J. J. HARGER, V.M.D.,
Assistant Demonstrator of *Veterinary Anatomy.*

CHARLES WILLIAMS, V.M.D.,
Demonstrator of *Surgical Pathology* (*Veterinary*).

GARRETT EDWARDS,
Farrier, Demonstrator of *Forging and Horse-shoeing.*

JOHN B. ROBERTS, M.D.,
Assistant Demonstrator of *Anatomy.* 1627 Walnut-st.

CARL HERING, B.S.,
Instructor in *Electrical Engineering.* 3816 Spring Garden-st.

OTTO REUNING,
Clerk to the College Faculty.

WM. H. SALVADOR,
Clerk to the Faculty of Medicine.

JOHN A. REIMOLD,
Clerk to the Faculty of Dentistry.

JOHN H. SALVADOR,
Clerk to the Faculty of Veterinary Medicine.

BARCELONA BASS,
Clerk to the Faculty of Biology.

Digitized by Google

COLLEGE DEPARTMENT.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY, and *ex-officio* President of the Faculty.

E. OTIS KENDALL, LL.D., VICE-PROVOST, *ex-officio* DEAN OF THE FACULTY, and THOMAS A. SCOTT Professor of *Mathematics and Astronomy.*

JOSEPH LEIDY, M.D., LL.D., Professor of *Zoölogy and Comparative Anatomy.*

FRANCIS A. JACKSON, A.M., Professor of the *Latin Language and Literature.*

OSWALD SEIDENSTICKER, PH.D., Litt.D., Professor of the *German Language and Literature.*

JOHN G. R. McELROY, A.M., Professor of *Rhetoric* and the *English Language.*

J. I. CLARK HARE, LL.D., Professor of *Constitutional Law.*

REV. ROBERT E. THOMPSON, D.D., JOHN WELSH CENTENNIAL Professor of *History* and *English Literature.*

FREDERICK A. GENTH, PH.D., Professor of *Chemistry.*

GEORGE. F. BARKER, M.D., PH.B., Professor of *Physics.*

THOMAS W. RICHARDS, A.M., Professor of *Drawing and Architecture.*

LEWIS M. HAUPT, A.M., C.E., Professor of *Civil Engineering.*

GEORGE A. KŒNIG, PH.D., Professor of *Mineralogy and Metallurgy.*

SAMUEL P. SADTLER, PH.D., Professor of *Organic and Industrial Chemistry.*

HUGH A. CLARKE, MUS. DOC., Professor of the *Science of Music.*

REV. FREDERICK A. MUHLENBERG, D.D., LL.D., Professor of the *Greek Language and Literature.*

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany.*

WILLIAM D. MARKS, PH.B., C.E., Whitney Professor of *Dynamical Engineering.*

OTIS H. KENDALL, PH.D., Assistant Professor of *Mathematics.*

MORTON W. EASTON, PH.D., Professor of *Comparative Philology*, and Instructor in *French.*

Digitized by Google

FREDERICK A. GENTH, JR., M.S., Assistant Professor of *Chemistry.*
EDMUND J. JAMES, PH.D., Professor of *Public Finance and Administration.*
JOHN B. McMASTER, A.M., Professor of *American History.*
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology.*
REV. GEORGE S. FULLERTON, A.M., B.D., ADAM SEYBERT Professor of *Intellectual and Moral Philosophy.*
J. WM. WHITE, M.D., Director of *Physical Education.*
REV. JOHN P. PETERS, PH.D., Professor of *Hebrew.*
JOHN A. RYDER, PH.D., Professor of *Comparative Embryology.*
HENRY W. SPANGLER, Assistant Engineer U.S.N., Assistant Professor of *Dynamical Engineering.*
SAMUEL G. DIXON, M.D., Professor of *Hygiene.*
CHARLES S. DOLLEY, M.D., Professor of *Biology.*

INSTRUCTORS.

EDWIN S. CRAWLEY, B.S., Instructor in *Mathematics.*
EDWARD P. CHEYNEY, A.M., Instructor in *History and Latin.*
ARTHUR W. GOODSPEED, A.B., Instructor in *Physics.*
HUGO A. RENNERT, B.S., Instructor in *French and German.*
J. FOSTER KIRK, A.M., Lecturer on *History.*
BENJAMIN FRANKLIN, B.S., C.E., Instructor in *Civil Engineering.*
SAMUEL S. EVANS, B.S., C.E., Instructor in *Civil Engineering.*
FELIX E. SCHELLING, A.M., Instructor in *English.*
CHARLES HERMAN HAUPT, B.S., Instructor in *Civil Engineering.*
D. NEIL HARPER, B.S., Assistant in *Analytical Chemistry.*
SAMUEL BROWN WYLIE, A.M., Instructor in *Mathematics.*
CHARLES GILPIN, JR., A.M., Instructor in *Book-keeping.*
EDWIN A. KELLEY, Assistant in *Anatomy.*
HOBART A. HARE, M.D., Instructor in *Physiology.*
MILTON J. GREENMAN, Assistant in *Biology.*
A. H. P. LEUF, M.D., Assistant Director of *Physical Education.*
CARL HERING, B.S., Assistant to the Professor of *Dynamical Engineering,* and Instructor in *Electrical Engineering.*

FRANCIS A. JACKSON, *Secretary.*

Digitized by Google

GRADUATE STUDENTS.

HECTOR TYNDALE FELLOW IN PHYSICS.

George Flowers Stradling, A.B., Hatboro, Pa.

POST SENIORS.

COURSE IN SCIENCE.

4.	Henry Clay Adams, B.S.,	Philadelphia,	1921 *Green-st.*
3.	Charles Louis Eugene Amet, B.S.,	do.	127 *N. 21st-st.*
4.	Henry Price Ball, B.S.,	do.	4533 *Frankford Ave.*
4.	Charles Thos. Parry Brunner, B.S.,	do.	1921 *Arch-st.*
4.	Albert Rowland Cline, B.S.,	do.	3718 *Haverford-st.*
2.	Thomas Darling Drown, B.S.,	Weldon, Pa.	
4.	Edgar Pardee Earle, B.S.,	Chestnut Hill.	
2.	Joseph Sketchley Elverson, B.S.,	Camden, N.J.,	437 *Stevens-st.*
1.	Lee Käufer Frankel, B.S.,	Philadelphia,	1315 *Marshall-st.*
3.	Silas Godfrey Griffith, B.S.,	do.	1110 *W. Dauphin-st.*
4.	William Hahman, B.S.,	do.	*Harrowgate Lane.*
1.	John Dawson Hawkins, B.S.,	do.	2143 *Mt. Vernon-st.*
1.	John Julius Hovey, B.S.,	Beverly, N. J.	
2.	Frank James Keeley, B.S.,	Philadelphia,	3815 *Spruce-st.*
3.	Edward Fulbister Kenney, B.S.,	Moores, Pa.	
1.	Jno. Philip Krecker, B.S.,	Philadelphia,	1014 *N. 2d-st.*
3.	Theophilus Kuelling, B.S.,	Lancaster, Pa.,	109 *N. Mulberry-st.*
3.	Thomas Love Latta, B.S.,	Philadelphia,	3717 *Hamilton-st.*
3.	William McLean, B.S.,	do.	2000 *Wallace-st.*
3.	Albert Lee Magilton, B.S.,	do.	421 *N. 32d-st.*
3.	George Ledlie Martin, B.S.,	do.	1316 *Catharine-st.*
1.	Levis Passmore Newlin, B.S.,	do.	1730 *Catharine-st.*
4.	William Byrd Page, B.S.,	do.	281 *S. 4th-st.*
4.	David Pepper, Jr., B.S.,	do.	1827 *Spruce-st.*
3.	Andrew Perry Redifer, B.S.,	do.	135 *Race-st.*
1.	Robert Neales Riddle, B.S.,	do.	4722 *Green-st.*
4.	Henry Hunter Seyfert, B.S.,	do.	1735 *Park Ave.*
4.	Alfred Henry Smith, B.S.,	do.	1416 *Bouvier-st.*
4.	William Poultney Smith, Jr., B.S.,	Abington, Pa.	
2.	Milton Valentine Snyder, B.S.,	Philadelphia,	515 *N. 38th-st.*
3.	Theodore Nelson Spencer, B.S.,	do.	1735 *Mt. Vernon-st.*
2.	Daniel Morrell Stackhouse, B.S.,	Wallingford, Pa.	
3.	Horace Ambrose Stever, Jr., B.S.,	Philadelphia,	1718 *Cadwallader-st.*
3.	Joseph Christian Wagner, B.S.,	do.	1539 *N. 12th-st.*
3.	John Wallace Weaver, B.S.,	do.	1909 *N. 7th-st.*

UNDERGRADUATES.

SENIORS.

COURSE IN THE ARTS.

William Clarence Arrison,	Frankford,	33 *E. Orthodox-st.*
William Lyttleton Barclay,	Philadelphia,	1816 *Pine-st.*
Richard Henry Bayard Bowie,	do.	1710 *Walnut-st.*

Digitized by Google

Robert Tillson Brinton,	Media, Pa.	
John Sims Forbes,	Philadelphia,	1409 *Locust-st.*
Walter Budd Keen,	do.	3913 *Chestnut-st.*
Theodore William Kretschmann,	Germantown,	15 *Meehan Ave.*
Stuart Douglas Lansing,	Burlington, N. J.	
James Barton Longacre,	Philadelphia,	1315 *Spruce-st.*
William Wilson Longstreth,	do.	2013 *Chestnut-st.*
Ernest de Fremery Miel,	do.	515 *S.* 41*st-st.*
Samuel Geo. Morton Montgomery,	West Chester, Pa.,	*Ardrossan.*
William Salter Porter,	Media, Pa.	
James Martin Raker,	Philadelphia,	2937 *Richmond-st.*
Horace Clark Richards,	do.	4812 *Fairmount Ave.*
John David Samuel,	do.	1809 *Pine-st.*
John Duncan Ernest Spaeth,	do.	1615 *Girard Ave.*
Lawrence Savery Smith,	do.	1419 *Walnut-st.*
Carrow Thibault,	do.	325 *S.* 16*th-st.*
Carleton Bicknel Zeilin,	Germantown,	*Tulpehocken-st.*

COURSE IN SCIENCE.

3.	Eugene Delano Cleaver,	Berwyn, Pa.	
3.	George Brodhead Harris,	Germantown,	*School Lane.*
3.	Manton Eckfeldt Hibbs,	Philadelphia,	527 *N.* 18*th-st.*
1.	Oliver Hough,	do.	325 *S.* 16*th-st.*
3.	Frederick Mervin Ives,	Rome, Italy,	3709 *Woodland Ave.*
1.	Herbert Moses Kaufmann,	Philadelphia,	1325 *Franklin-st.*
4.	Edwin Robert Keller,	do.	257 *N.* 6*th-st.*
4.	Edgar Kidwell, M.E.,	Washington, D.C.,	3926 *Pine-st.*
4.	Charles Everett Ross,	Chester, Pa.,	347 *Kerlin-st.*
3.	William James Smith,	Philadelphia,	868 *Preston-st.*
3.	William Caner Wiedersheim,	do.	315 *S.* 17*th-st.*
5.	Maurice Davidson Wilt,	do.	1417 *N.* 15*th-st.*

COURSE IN THE WHARTON SCHOOL.

George Clay Bowker,	Manayunk,	4365 *Main-st.*
Benjamin Wilfrid Fleisher,	Philadelphia,	2131 *Green-st.*
Franklin Derstine Hartzell,	Sellersville, Pa.	
Thomas Atkinson Jenkins,	Gwynedd, Pa.	
Samuel Kahn Louchheim,	Philadelphia,	711 *N.* 6*th-st.*
Adam Keith Luke,	Rockland, Del.	
Edward Alden Miller,	Philadelphia,	1309 *Pine st.*
David Emanuel Simon,	do.	826 *N.* 5*th-st.*
Lightner Witmer,	do.	1734 *Park Ave.*
Charles Sturgis Wood,	do.	*Continental Hotel.*

COURSE IN PHILOSOPHY.

Julian Hiland Dewey	Philadelphia,	1537 *Centennial Ave.*
John Alexander McIlwain,	do.	2044 *N.* 7*th-st.*

JUNIORS.

COURSE IN THE ARTS.

Frederic Robeson Baker,	Philadelphia,	1414 *Arch-st.*
William Alexander Bell,	New York City,	717 *S.* 10*th-st.*

Digitized by Google

Charles Newton Clement Brown,	Philadelphia,	2119 *Mt. Vernon-st.*
Leon Symonety Dexter,	do.	437 *N. 32d-st.*
Conway Dillingham,	West Chester, Pa.	
Sherborne William Dougherty,	Philadelphia,	1435 *Girard Ave.*
William Innes Forbes,	do.	1409 *Locust-st.*
Charles Harrison Frazier,	do.	250 *S. 18th-st.*
Dallett Fuguet,	Bryn Mawr, Pa.	
Matthew James Hyndman,	Philadelphia,	1529 *N. 2d-st.*
Edwin Isaac Hyneman,	do.	1015 *Green-st.*
Charles King Lennig,	Andalusia, Pa.	
Joseph Reynolds McCance,	Pittsburgh,	3336 *Chestnut-st.*
James Clayton Mitchell,	Philadelphia,	1525 *N. 16th-st.*
Charles Peabody,	Germantown,	*Wayne & Walnut Lane.*
Elliston Joseph Perot,	do.	*W. Walnut Lane.*
Lloyd Mifflin Scott,	Philadelphia,	2000 *Spruce-st.*
Daniel Bussier Shumway,	do.	1740 *Green-st.*
William Macpherson Wiltbank,	do.	1813 *De Lancey Place.*

COURSE IN SCIENCE.

2. Franklin Bache,	Philadelphia,	*Cor. 40th & Pine Sts.*
3. Timothy Raymond Beyer,	Germantown,	4835 *Green-st.*
3. Oscar Pearl Chamberlain,	Philadelphia,	3923 *Aspen-st.*
4. Francis Macomb Cresson,	Oaks, Pa.	
3. Christian Frederic Fisher,	Philadelphia,	515 *Green-st.*
3. Thomas Willis Fleming,	do.	2105 *Tioga-st.*
3. George Hammeken Hill,	do.	231 *S. 42d-st.*
3. Thomas Wilkins Hulme,	Mount Holly, N. J.	
1. Henry Martin Justi,	Philadelphia,	3401 *Baring-st.*
5. Charles Barton Keen,	do.	3913 *Chestnut-st.*
4. Rudolph Howard Klauder,	do.	2208 *Venango-st.*
2. Edward Christman Knight,	Germantown,	*Clapier-st.*
3. Geo. Whitfield Taylor Miller,	do.	5122 *Green-st.*
2. Edward Asa Partridge,	Philadelphia,	1738 *Sydenham-st.*
4. Walter Phillips,	do.	450 *Marshall-st.*
3. David Bowen Salter,	do.	2016 *Mt. Vernon-st.*
3. John Richard Savage, Jr.,	Frankford,	*W. Orthodox-st.*
4. Isaac Starr, Jr.,	Philadelphia,	2203 *Trinity Place.*
4. Edward Hand Williamson, Jr.,	do.	3321 *Walnut-st.*
1. Archibald Wright,	do.	1804 *Race-st.*

COURSE IN THE WHARTON SCHOOL.

Herbert Hart Boyd,	Philadelphia,	2223 *Spruce-st.*
George Brooke, Jr.,	Birdsboro, Pa.	
Rodman Ellison Griscom,	Haverford College.	
William Guggenheim,	Philadelphia,	1420 *N. 16th-st.*
Tamio Hayashi,	Tokio, Japan.	
George Henderson,	Philadelphia,	1221 *Arch-st.*
Robert Carmer Hill,	do.	129 *N. 18th-st.*
Charles P. B. Jefferys, Jr.,	do.	3928 *Walnut-st.*
Samuel McCune Lindsay,	do.	3912 *Chestnut-st.*
Edward Warloch Mumford,	do.	1401 *N. 17th-st.*

Digitized by Google

Ellis Paxson Oberholtzer,	Norristown, Pa.	
Walter Scott,	Philadelphia,	3808 *Chestnut-st.*
Albert Haseltine Smith,	Abington, Pa.	
Robert Stulb,	Philadelphia,	506 *N. 4th-st.*
Nathan Young Worrall,	do.	2005 *Mt. Vernon-st.*

UNDERGRADUATE COURSE IN PHILOSOPHY.

Howard Mellor,	Philadelphia,	460 *Marshall-st.*
Alfred Newlin Seal,	do.	1418 *Bouvier-st.*
Archibald Grahm Thomson,	do.	1426 *Walnut-st.*

SOPHOMORES.

COURSE IN THE ARTS.

John Antrobus,	Philadelphia,	2512 *Hagert-st.*
Lewis Audenried,	do.	1823 *Walnut-st.*
William Wilson Barr, Jr.,	do.	1425 *Christian-st.*
John Hill Brinton,	do.	1423 *Spruce-st.*
Herbert Charles Brown,	do.	2221 *Catharine-st.*
William Herbert Burk,	Clarksboro, N. J.,	2110 *Vine-st.*
Robert Bealle Burke,	Philadelphia,	131 *S. 36th-st.*
Joseph Warren Coulston, Jr.,	do.	1326 *Walnut-st.*
George Herbert Dennison,	Roxborough, Pa.	
James Whalley Diggles,	Philadelphia,	2442 *Oxford-st.*
Robert Isaac Gamon,	do.	1629 *Christian-st.*
Henry Riley Gummey, Jr.,	Germantown,	*E. Walnut Lane.*
Henry Leopold Jefferys,	do.	3928 *Walnut-st.*
Henry Ashton Little,	Wallingford, Pa.	
William Henry Loyd, Jr.,	Philadelphia,	4309 *Spruce-st.*
James Hartley Merrick,	Roxborough, Pa.	
Joseph Mac Gregor Mitcheson,	Philadelphia,	1608 *Locust-st.*
Frederick Brooke Neilson,	do.	325 *S. 12th-st.*
De Lancey Verplanck Newlin,	do.	1018 *Clinton-st.*
William Rufus Nicholson, Jr.,	do.	2106 *Chestnut-st.*
Hugh Walker Ogden,	Portland, Me.	
William Hahn Patterson,	Philadelphia,	1633 *Locust-st.*
Josiah Harmar Penniman,	do.	2316 *St. Alban's Place.*
Robert McClellan Ramsey,	do.	1717 *Carpenter-st.*
George David Rosengarten, Jr.,	do.	325 *S. 17th-st.*
John Gilbert Stoddart,	do.	107 *S. 21st-st.*
William Henry Stubblebine,	do.	2019 *N. 18th-st.*
Howard Hungerford Sypher,	do.	4025 *Walnut-st.*
William Henry Trotter, Jr.,	do.	1303 *Spruce-st.*
Robert Reineck Truitt,	do.	3505 *Baring-st.*
Horace Andrews Walton,	Roxborough, Pa.	
Peter Silas Zimmerman,	Philadelphia,	2406 *Columbia Ave.*

COURSE IN SCIENCE.

Charles Shimer Boyer,	Camden, N. J.,	528 *Linden-st.*
Clarence Chew Burger,	Philadelphia,	3153 *Mantua Ave.*

Digitized by Google

Evaristo Andrew Calves,	Philadelphia,	1814 *Park Ave.*
Henry Yale Dolan,	do.	1809 *N. Broad-st.*
Maurice Mayer Feustmann,	do.	1512 *Girard Ave.*
Edwin Stanton Field,	do.	36*th & Powelton Ave.*
Hermann Fleck,	Germantown,	108 *Rittenhouse-st.*
Frank Richards Ford,	Philadelphia,	1823 *Vine-st.*
William Goodwin,	Chestnut Hill, Pa.	
Benjamin Lease Crozer Griffith,	Upland, Pa.	
William Oglesby Griffith,	Philadelphia,	2213 *Locust-st.*
Henry Warren Kilburn Hale,	do.	636 *Race-st.*
Atherton Holman Harlan,	do.	1515 *Walnut-st.*
William Howard Hart,	Ambler, Pa.,	1317 *Walnut-st.*
Philip Eugene Howard,	Philadelphia,	3710 *Walnut-st.*
James Clark Irwin,	Cheyney, Pa.	
John George Klemm, Jr.,	Philadelphia,	3934 *Chestnut-st.*
Manzo Kushida,	Tokio, Japan,	3328 *Walnut-st.*
Benjamin Brentnall Lathbury,	Philadelphia,	2112 *Uber-st.*
Arthur McGeorge,	Merion, Pa.	
Nelson Baum Mayer,	Philadelphia,	945 *N. 8th-st.*
Thomas MacKellar Royal,	Germantown, Pa.,	*Coulter & Hancock Sts.*
Newton Webster Samuel,	Philadelphia,	2144 *Park Ave.*
Adolph William Schramm,	Camden, N. J.,	521 *N. 2d-st.*
John Franklin Stevens,	Philadelphia,	3913 *Walnut-st.*
Richard Saunders Stoyle,	do.	2217 *Vine-st.*
William Henry Warrick,	do.	250 *S. 12th-st.*
Albert Joseph Zeleni,	do.	223 *Washington Ave.*

FRESHMEN.

Course in the Arts.

William Henry Ashhurst,	Philadelphia,	2210 *Walnut-st.*
Henry Ingersol Brown,	Germantown,	*Wayne Ave.*
Samuel Rakestraw Colladay	Philadelphia,	4051 *Sansom-st.*
Erskine Hazard Dickson,	do.	901 *Clinton-st.*
Jas. MacIntosh Longstreth Eckard,	Abington, Pa.	
Thomas Powers Harris,	Philadelphia,	1607 *Walnut-st.*
Herbert Rutherford Hogg,	do.	929 *N. Broad-st.*
Frederick Lennig,	Andalusia, Pa.	
George Francis Levan,	Philadelphia,	733 *N. 41st-st.*
Alfred Meyer Liveright,	Osceola Mills, Pa.,	1737 *N. 8th-st.*
William MacAdoo, Jr.,	Philadelphia,	1926 *Bainbridge-st.*
Thomas McKean, Jr.,	do.	1925 *Walnut-st.*
Alexander Wilson Norris, Jr.,	do.	2230 *Spruce-st.*
James De Wolf Perry, Jr.,	Germantown,	*Manheim-st.*
Wilson Worrell Pile,	Philadelphia,	721 *Spruce-st.*
Wilmer Hershey Righter,	do.	4012 *Spruce-st.*
Sidney Wheaton Smith,	do.	218 *N. 32d-st.*
Cornelius Weygandt,	Germantown,	124 *Tulpehocken-st.*
John Robert White, Jr.,	Philadelphia,	20*th-st. & Ontario Ave.*
Francis Yarnall,	do.	3914 *Locust-st.*

Digitized by Google

COURSE IN SCIENCE.

William Batchelor,	Philadelphia,	886 *N. 6th-st.*
Scott Beggs,	Wilmington, Del.	
James Lord Bernard,	Manayunk,	117 *Green Lane.*
James Manderson Castle,	Philadelphia,	4241 *Walnut-st.*
Daniel Bell Cummins Catherwood,	do.	2112 *Walnut-st.*
Edgar Moore Church,	Germantown.	
Edwin Adams Damon,	Philadelphia,	1606 *Walnut-st.*
George Peterson Deacon,	Germantown,	*E. Walnut Lane.*
Henry Delaplaine,	Philadelphia,	3706 *Baring-st.*
John Joseph Elcock,	Waverly Heights.	
Richard Field,	Philadelphia,	5600 *Lansdowne Ave.*
Sparta Fritz, Jr.,	Germantown,	5006 *Green-st.*
Edward Prime Goodell,	Philadelphia,	1418 *Spruce-st.*
Lloyd Carpenter Griscom,	Haverford College.	
Francis Head,	Germantown,	132 *Price-st.*
Thomas Wallis Huidekoper,	Philadelphia,	2020 *Spruce-st.*
Hisaya Iwasaki,	Tokio, Japan,	443 *S.* 41*st-st.*
Topliff Johnson,	Germantown,	*Locust Ave.*
Chester Hughes Kirk,	Philadelphia,	1518 *N.* 18*th-st.*
William Gray Knowles,	do.	1628 *Spruce-st.*
Burnet Landreth, Jr.,	Bristol, Pa.	
Charles Ridgely Lee,	Philadelphia,	4216 *Walnut-st.*
Arthur Loeb,	do.	947 *N.* 8*th-st.*
George Ingels MacLeod, Jr.,	do.	3905 *Locust-st.*
John Maurer,	do.	102 *S. Second-st.*
Frederick Rogers Meigs,	do.	1713 *Locust-st.*
Harvey E. Platt,	do.	2026 *Wallace-st.*
William Beni Rosskam,	do.	1423 *N.* 15*th-st.*
Edward Koons Rowland,	do.	2029 *Spruce-st.*
Walter Rowland,	Frankford.	
Edward Adams Shumway,	Philadelphia,	1740 *Green-st.*
George Hughes Smith,	MahanoyCity,Pa.,	1918 *Judson Place.*
James Starr,	Germantown,	*Clivedon & Morton Sts.*
John Hermon Terry,	Philadelphia,	2119 *N.* 13*th-st.*
John Andrew Tracy,	Erie, Pa.	2006 *Spruce-st.*
James Mortimer West, Jr.,	Philadelphia,	1524 *Swain-st.*
Biddle Wood,	Conshohocken, Pa.	
Horatio Curtis Wood,	Germantown,	147 *School-st.*
James Charles Ziegler,	Philadelphia,	636 *N.* 35*th-st.*

COURSE IN MUSIC.

Second Year.

Stanley Addicks,	Philadelphia,	706 Spruce-st.
Ella Ellis.		
Edward S. Field,	Philadelphia,	3502 *Hamilton-st.*
Anne F. Pond,	do.	2513 *Bond-st.*
Hedwig M. Schmitz,	do.	3104 *Baring-st.*
Katharine Thunder,	do.	1832 *Wylie-st.*

Digitized by Google

First Year.

Ida E. Bowser,	Philadelphia,	481 *N. 4th-st.*
Julia Plantholtz,	do.	
Clara R. Schaubel,	do.	
James C. Warhurst,	do.	

SPECIAL STUDENTS.

Towne Scientific School.

1. Daniel Byrne,	Philadelphia,	1336 *N. 11th-st.*
4. Napoleon Bonaparte Heller,	do.	853 *N. 20th-st.*
1. William Warren Funk,	Broad Axe, Pa.	
3. Charles Samuel Gawthrop,	Wilmington, Del.	
1. Emlen Trenchard Hall,	Philadelphia,	1623 *Spruce-st.*
3. William George Houston,	do.	814 *N. 21st-st.*
3. George Washington Hyde, Jr.,	do.	*Lemon Hill.*
4. Thomas Canning McBride,	do.	2212 *Brandywine-st.*
3. Robert McCleister,	do.	2218 *Pine-st.*
3. Alfred Varley Sims,	Orbisonia, Pa.	
1. Walter Raiguel Stroud,	Philadelphia,	2035 *Mt. Vernon-st.*
1. Charles Tindel,	Frankford,	236 *E. Orthodox-st.*
3. Carole Morton Broomall,	Media, Del.Co., Pa.	
3. Jacob Orie Clark,	Philadelphia,	2536 *Park Terrace.*
1. Gurney Fairfax Coleman,	do.	3729 *Spruce-st.*
1. Joseph Lazarus Hecht,	do.	1738 *Warnock-st.*
1. William Barklie Henry,	do.	2200 *St. James Place.*
1. August A. Miller,	do.	623 *N. 13th-st.*

Wharton School of Finance and Economy.

Charles Sterling Bonsall,	Philadelphia,	221 *N. 13th-st.*
George Thorn Hunsicker,	Olney, Pa.	
Joseph Sommer Jaffa,	Trinidad, Col.,	514 *N. 5th-st.*
Jeremiah Berrell Larzelere, Jr.,	Willow Grove, Pa.	
Robert Lee McClure,	Fort Smith, Ark.,	320 *N. 40th-st.*
John Lammey Stewart,	do.	1826 *Dickinson-st.*
William Cusack Sullivan,	San Antonio Tex.	
Joseph Fithian Tatem,	Haddonfield, N. J.	
Clarence Burns White,	Philadelphia,	750 *N. 40th-st.*
Clinton Rogers Woodruff,	do.	1847 *N. 21st-st.*

PARTIAL STUDENTS.

Department of Arts.

William Du Hamel,	Church Hill, Md.,	3301 *Woodland Ave.*
Walter Bomberger,	Collegeville, Pa.	
Franklin Nelson Strader,	Philadelphia,	*Wissahickon.*

Digitized by Google

Benjamin Curtis Allen,	Philadelphia,	3319 *Walnut-st.*
John Barker,	do.	4300 *Spruce-st.*
Charles Gibson Grosholz,	do.	1806 *Spruce-st.*
Albert Hill,	do.	1822 *Wallace-st.*
John Moore McGann,	do.	5 *Woodland Terrace.*
Joseph Baylis Thomas,	do.	3446 *Chestnut-st.*
Francis Churchill Williams,	Germantown,	4725 *Green-st.*

COURSE IN SCIENCE.

1. Charles Davis Clark,	Philadelphia,	2215 *Spruce-st.*
3. William Warner Hill,	do.	3601 *Baring-st.*
3. William Kenney Barclay,	do.	4044 *Chestnut-st.*
5. J. Vaughan Drown,	Weldon, Pa.	
3. Joseph Hildeburn Gumbes,	Germantown.	
1. Joseph Price Ball,	Philadelphia,	4533 *Frankford Ave.*
1. John Eugene Carbutt,	do.	2105 *Venango-st.*
1. Benjamin M. Davis,	do.	1723 *Vine-st.*
1. Clarence Sears Kates,	do.	1937 *Spring Garden-st.*
1. George Hummel McNeely,	do.	*S. W. Cor. 4th & Arch-st.*
1. August Appleton Miller,	do.	623 *N. 13th-st.*
John Joseph Borie,	do.	*Chestnut Hill.*
Henry Lincoln Haines,	Burlington, N. J.	
Charles J. McIlvain, Jr.,	Philadelphia,	435 *N. 33d-st.*
Henry Howard Cressman,	Sellersville, Pa.	
Joaquin Martinez,	Managua, Nicaragua,	139 *N. Water-st.*
Clayton Fotteral McMichael,	Philadelphia,	2041 *Walnut-st.*
Frederick Kollner Mears,	Clifton Heights, Pa.	

WHARTON SCHOOL OF FINANCE AND ECONOMY.

Dickinson Sergeant Miller,	Philadelphia,	1309 *Pine-st.*
George Stuart Patterson,	do.	*Chestnut Hill.*
William Bray Boyd,	Edge Hill, Pa.	

SUMMARY OF COLLEGE DEPARTMENT.

	Arts.	Science.	Philosophy.	Finance.	Music.	Total.
Post Seniors,	—	35	—	—	—	35
Seniors,	20	12	2	10	6	50
Juniors,	19	20	3	15	4	61
Sophomores,	32	28	—	—	—	60
Freshmen,	20	39	—	—	—	59
Special Students,	—	18	—	10	—	28
Partial Students,	10	18	—	3	—	31
Total,	101	170	5	38	10	324

Digitized by Google

COURSES OF STUDY.

The College Faculty conducts the following Courses of Study:

I. The Course in Arts.
II. The Courses in Science in the Towne Scientific School.
III. The Course in Finance and Economy in the Wharton School.
IV. A Course in Philosophy for Undergraduates.
V. The Course in Music.

In Freshman and Sophomore years, these courses (except that in Music) differ mainly in the languages elected by the student, whether Latin and Greek, Latin with French or German, or French and German without Latin. All four courses include History, English, Mathematics, Chemistry, and Mechanics. At the close of Sophomore year, the courses diverge into essentially different groups of studies, any one of which may be taken by the student, viz., the Elective Courses of the last two years in Arts, the Technical Courses in Science, special studies in Finance and Economy, and a group of Studies mainly Biological. Students who wish to take a Technical Course in Science, however, must show a preparation equivalent to that given by the two first years of the Course in Science. (Detailed statements of the studies of Junior and Senior years may be found on pp. 41–43, 47–51, 57–59 and 61–62, below.)

DEGREES.

The Degree of *Bachelor of Arts* (*A.B.*) is given on graduation (1) to students in Arts who have completed the full Course, (2) to students in the Wharton School or the Course in Philosophy for Undergraduates who have passed their first two years in the Course in Arts.

The Degree of Master of Arts is conferred on Bachelors of Arts of the University, of not less than three years' standing, who have pursued liberal studies since their graduation, and who present a satisfactory Thesis to the Faculty. This Thesis must be sent to the Dean by the first Friday in April.

The Degree of *Bachelor of Science* (*B.S.*) is given (1) to students in the Towne Scientific School at the end of Senior Year; (2) to students in Finance and Economy or in Philosophy who have passed their first two years in the Course in Science.

The Technical Degree of Practical Chemist (P.C.), Mining Engineer (E.M.), Civil Engineer (C.E.), Mechanical Engineer (M.E.), or Architect (Archt.) is given to Bachelors of Science in the Towne School at the end of Post-Senior Year. Alumni of the Towne School who hold a Bachelor's Degree may receive the Technical Degree corresponding to their Special

Digitized by Google

Course, on completing satisfactorily at any time the studies of Post-Senior Year.

The Degree of *Bachelor of Philosophy* (*Ph.B.*) is given on graduation (1) to students who have pursued the full Course of the Wharton School; (2) to those who have taken the full Course in Philosophy for Undergraduates.

PUBLIC LECTURES.

The following Courses of Lectures given in this Department are open to the public:—

On *German Literature*, by Professor SEIDENSTICKER.

On *The Older English Classics*, by Professor MCELROY.*

On *Physics*, by Professor BARKER.

On *Inorganic, Organic and Applied Chemistry*, by Professor SADTLER.

On *The Literary History of Israel*, by the Rev. Professor PETERS.

On (a) *Mohammed and Mohammedanism* (six lectures), (b) *The Talmud* (two lectures), by Professor MORRIS JASTROW, JR.

On *The Position of Babylon in the History of Civilization*, by the Rev. Professor HILPRECHT.

On *American Archæology*, by Professor BRINTON.

The instruction in Analytical Chemistry, including practical work in the laboratory, under Professor GENTH, is also open to the public.

The fee for each course of lectures is ten dollars; for the instruction in Analytical Chemistry, two hundred dollars a year.

Application for admission or for further information respecting lectures or instruction may be made to the Dean or to the Secretary of the Faculty.

FEES.

For College Fees, Expenses, Boarding, etc., see page 167.

COLLEGE GUARDIANSHIP.

Students not residing at their own homes are assigned each to some member of the Faculty for personal care and oversight. Other students are so assigned by classes or sections, the member of the Faculty in this case being known as the Class (or Section) Officer.

SCHOLARSHIPS.

I. THE PENN SCHOLARSHIPS, two in number, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege reserved by Thomas Penn, Proprietary of Pennsylvania.

II. Certain Free Scholarships (about five in each class) are granted to

---

* This course consists chiefly of Readings, with critical commentary.

Digitized by Google

deserving and needy students in this Department, under the following regulations:

Each candidate must present to the Dean of the Faculty, at or before the entrance examinations in June or September, written testimonials as to his deserts and needs. After passing his examinations satisfactorily, he will be recommended for admission to the Committee of the Board of Trustees. The scholarships are granted for one year only.

III. THE PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under a contract with the City of Philadelphia, Fifty Free Scholarships have been permanently established in the College Department of the University for the benefit of pupils from the Public Schools of the city. The candidates for these scholarships are sent by the Board of Public Education to the examinations for admission in June. They are examined at the same hours and on the same subjects as other candidates, but not necessarily on the same papers. The scholarships, according to the number of vacancies, are bestowed upon those who reach the highest grade in their examination, provided that grade be at least sixty-five per cent.

Of these, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, and the SAMUEL V. MERRICK SCHOLARSHIP have been endowed.

IV. The income of the BLOOMFIELD MOORE FUND is intended to enable women (not exceeding six in any year) who are teaching, or who propose to teach, to receive free instruction in all departments to which women are admitted.

EXAMINATIONS

are held at the end of each term. Students who attain a certain standing are classed as "Distinguished;" those whose term-averages show them to be deficient in any of their studies are conditionally attached to their class, until the deficiency has fully been made up. For persistent neglect of study, great irregularity of attendance, or inability to keep up with the class, students are dropped from the rolls.

PRIZES FOR THIS YEAR.

I. THE FACULTY PRIZES:

1. A prize of twenty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. (Not to be awarded in 1887-88.)

2. A prize of twenty dollars for the best examination on the *Oration of Æschines against Ctesiphon* by a member of the Junior Class.

3. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents. The examination will be on the whole of *Arnold's Greek Prose Composition.*

Digitized by Google

4. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the Voluntary Junior Class.

5. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Constitutional Convention of* 1787 *and its Work.*

6. A prize of twenty dollars for the best Essay by a member of the Junior Class. Subject: *The By-Ways of English Literature.*

7. A prize of fifteen dollars for the best Declamation by a member of the Sophomore Class.

8. A first prize of fifteen dollars, and a second prize of ten dollars, for the best special examinations in the Elements of Latin Prose Composition, by Freshmen on entering College. The examinations must reach a satisfactory standard of excellence. In 1888, they will be upon the first fifty-five exercises in *Arnold's Latin Prose Composition.* Certificates will be presented to *all* competitors whose examinations reach a satisfactory standard.

9. Two prizes of the same value as those offered for Latin Prose Composition for the best special examinations in Greek Prose Composition by Freshmen on entering College. In 1888, they will be on *Jones' Greek Exercises,* with the Accents.

10. A prize of twenty dollars to a member of the Scientific Classes for improvement in Drawing, and for general good conduct and application.

II. THE HENRY REED PRIZE, founded by the Alumni of the University, for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a Diploma of Merit. The Essay must be handed to the Dean before the first day of May. Subject: *The Relation of Reason to Poetry as suggested by Bacon.* (Reed's British Poets, vol. ii, p. 47.)

III. THE SOCIETY OF THE ALUMNI PRIZES.

1. A prize for the best Latin Essay, by a member of the graduating class. It entitles the successful competitor to one year's interest on nine hundred dollars. The essays must be handed to the Dean by the first day of May, for transmission to a Committee of Examiners appointed by the Society.

2. A prize for the best Original Declamation by a member of the Junior Class. It entitles the successful competitor to one year's interest on three hundred dollars.

IV. A prize, founded by HENRY LA BARRE JAYNE, of the Class of 1879, for the best English Composition by a member of the Freshman

Digitized by Google

Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *The Causes of the Mexican War* (1845–48).

V. THE JOSEPH WARNER YARDLEY PRIZE, founded by the class of 1877 in memory of their class-mate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars, and to an accompanying Diploma of Merit. Subject: *The Causes that Determine the Rate of Wages.*

VI. A prize, founded by D. VAN NOSTRAND, Esq., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship, It consists of certain technical works.

VII. A prize, founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, Samuel Brown Wylie Mitchell, M.D., of the class of 1852, for the best work in English Composition, done during the year, by a member of the Sophomore Class. It entitles the winner to one year's interest on four hundred dollars.

SOCIETIES.

The PHILOMATHEAN (Literary) SOCIETY, founded in 1813, holds meetings weekly during the college year, at its rooms in the University. All undergraduates of the College Department are eligible to membership. The order of exercises includes orations, essays, and a debate, besides the usual general business, which affords excellent practice in the principles of parliamentary law. A large and valuable library is owned by the Society.

The SCIENTIFIC SOCIETY holds weekly meetings at its rooms in the University throughout the college year. All undergraduates of the University are eligible to membership. Scientific essays are read, discussions are held, with a general comparison of observations and experiments. Besides a considerable scientific library, large collections of minerals, fossils, ornithological specimens, and other objects of scientific interest are owned by the Society. A course of lectures, under the management of the Society, is delivered annually.

ACADEMY OF NATURAL SCIENCES.

Through the courtesy of the Curators of the Academy of Natural Sciences (S. W. Corner of Nineteenth and Race Sts.), students of the University are admitted free of charge to its very extensive museum on exhibition of their Matriculation Card. Permission to use the Museum for

Digitized by Google

special study, or to consult the library of 30,000 volumes on Natural History can be obtained by application to the Curators.

For further information concerning this Department, address Prof. E. Otis Kendall, LL.D., Dean of the College Faculty.

THE COURSE IN ARTS.

ENTRANCE EXAMINATION.

For the FRESHMAN CLASS, candidates are examined in—

GREEK.—Grammar. Prose Composition. (White's *First Lessons* covers the amount required.) Xenophon (*Four Books of the Anabasis*). Homer (*Three Books of the Iliad or the Odyssey*).

LATIN.—Grammar. Cæsar (*Four Books of the Gallic War*). Virgil (*Six Books of the Æneid*). Cicero (*Six Orations*). Prose Composition (as in Arnold's *Latin Prose Composition to the end of Exercise* 20).

ENGLISH.—Grammar and Composition.

The examination will include: 1st. The grammatical analysis of a simple passage in prose or verse; 2d. The correction of specimens of English bad in grammar or expression, with a brief statement of the principles on which the correction is made; 3d. A short composition, correct in spelling, punctuation, grammar, expression, and division by paragraphs, on one of several subjects to be announced at the time of the examination, and to be taken from the last named of the following books, all of which (or the last-named and equivalents for the first three) must have been read by each candidate, viz., Alexander Smith's *On the Writing of Essays*, and *A Shelf in My Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210); Kingsley's *Hereward, The Last of the English;* Shakespeare's *As You Like It;* and Scott's *Rob Roy*.

The following books indicate the amount and the kind of knowledge required to pass this examination; viz., Abbott's *How to Parse*, Whitney's *Essentials of English Grammar*, or Murray's *Advanced Lessons in English Composition, Analysis and Grammar;* and Abbott's *How to Write Clearly*.

The subjects of composition in 1889 will be taken from the last named of the following works, viz.: Shakespeare's *As You Like It* and *Midsummer Night's Dream*, Scott's *Rob Roy*, and Thackeray's *English Humorists*.

In 1890, the books will be Scott's *Quentin Durward*, Thackeray's *English Humorists*, Shakespeare's *Midsummer Night's Dream*, and Goldsmith's *Deserted Village*.

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Scudder or Johnston is suggested.)

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane Geometry.

Digitized by Google

FOR ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes.

PRELIMINARY EXAMINATIONS. Candidates who wish to do so may be examined one year in advance of their entering college in any or all of the following subjects; viz., Arithmetic, Algebra (subjects contained in the first eleven chapters of Wentworth), Greek Grammar, Greek Prose Composition, and Xenophon; Latin Grammar, Latin Prose Composition, and Virgil; French Grammar; German Grammar; English Grammar; History of the United States. A record will be kept of these examinations, and credit be given for such of them as are passed satisfactorily.

The examinations are held in June and September, but preliminary examinations will ordinarily be held only in June. Circulars stating the days and the subjects of examination for each day can be had, after April 1st, on application to Mr. OTTO REUNING, Clerk to the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

GREEK.—Xenophon's *Hellenics*. Æschylus. Arnold's Greek Prose Composition, completed. [Prof. Easton. 4*]

LATIN.—Selections from Livy, and Horace's Satires. [Prof. Jackson. 5]

ENGLISH.—Rhetoric (McElroy's *Structure of English Prose*). Readings from an English prose author, with Compositions on Themes selected from these Readings. [Mr. Schelling. 2]

DECLAMATION. Exercises in Reading and Speaking, with special reference to Expression, Emphasis, and Voice Culture. [Prof. McElroy. About once in three weeks.]

HISTORY.—Freeman's *General Sketch of History*. [Prof. Thompson. 2]

MATHEMATICS.—Wells' *Algebra*. Chauvenet's *Geometry*. Wentworth's *Trigonometry*. [Mr. Wylie. 5]

SOPHOMORE CLASS.

GREEK.—Thucydides (*Sicilian Expedition*). Euripides or Aristophanes. Greek Composition. [Prof. Muhlenberg. 3]

LATIN.—Tacitus (*Agricola*, *Germania*, or *Annals*). Cicero (*De Senectute* or *De Officiis*). Horace (*Selected Odes*). [Prof. Jackson. 4]

ENGLISH.—Gummere's *Poetics*. Lectures on the History of the English Language, with special reference to Historical English Grammar. (Lounsbury's *English Language*. Sweet's *Anglo-Saxon Primer*.) Six Compositions. Two or more Declamations. [Mr. Schelling. 2]

* Hours per week.

Digitized by Google

MATHEMATICS.—Bowser's *Analytical Geometry.* Elementary Differential and Integral Calculus. [Prof. O. H. Kendall. 4]

PHYSICS.—Lodge's *Mechanics.* [Mr. Goodspeed. 2 hours, Second Term.]

CHEMISTRY.—Inorganic and Organic Chemistry (*Experimental Lectures, with Examinations*). [Prof. Sadtler. 3]

GERMAN.—Whitney's *Grammar.* Grimm's *Märchen.* [Prof. Seidensticker. 2 hours, Second Term.]

JUNIOR CLASS.

REQUIRED,—

LOGIC AND PSYCHOLOGY.—Jevons's *Lessons in Logic.* Lotze's *Outlines of Psychology.* Lectures on Psychology. [Prof. Fullerton. 2]

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics* and Lectures.) [Prof. Barker. 4]

ENGLISH.—Six Compositions. [Prof. McElroy.]

HISTORY.—History of English Literature. [Prof. Thompson. 2]

ELECTIVE,*—

A.

GREEK.—Sophocles. Lysias or Isocrates. Theocritus or Pindar. (Prof. Muhlenberg. 3]

LATIN.—Selections from Juvenal. Cicero (*De Officiis, De Finibus* or *De Amicitia*). Horace (*Epistles*). Reading at sight. [Prof. Jackson. 3]

HEBREW.—Harper's *Elements* and *Method and Manual.* Selections from *Genesis* and *Judges.* Reading at sight. English into Hebrew. [Prof. Peters. 2†]

SANSKRIT.—Whitney's *Sanskrit Grammar.* Lanman's *Reader.* [Prof. Easton. 2†]

ANGLO-SAXON.—Sweet's *Reader.* History of Anglo-Saxon Literature. [Prof. McElroy. 2†]

GERMAN.—Boisen's *German Prose.* Schiller's *Jungfrau von Orleans.* Goethe's *Hermann und Dorothea.* Grammar and Exercises continued. [Prof. Seidensticker. 3]

FRENCH.—Easy Prose. Harrison's *Syntax.* [Mr. Rennert. 3†]

B.

PURE MATHEMATICS.—Todhunter's *Theory of Equations.* Advanced Trigonometry and Analytical Geometry. [Prof. O. H. Kendall. 3]

---

* Of group A, each Junior must take at least two studies, and of group B at least one, making his total number of hours per week, including required work, not less than fifteen nor more than eighteen.

† See Remark, page 43.

Digitized by Google

HISTORY.—General European History. [Mr. Kirk. 3]

ENGLISH.—Critical Study of English Prose Authors, with special reference to Composition. [Prof. McElroy. 2]

MINERALOGY.—The Systematic Description of Mineral Species. Their Geometric and Physical Properties. (Dana's *Manual*. Students handle the specimens.) [Prof. Kœnig. 2]

BOTANY.—General Principles of Structural and Physiological Botany. (Gray's *Text-book of Botany*.) [Prof. Rothrock. 1]

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat*.) [Prof. Jayne. 2]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Vertebrates. (Lectures.) [Prof. Leidy. 1]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

SENIOR CLASS.

REQUIRED,—

PHILOSOPHY AND ETHICS.—Berkeley's *Principles of Human Knowledge*. Studies in the History of Philosophy. Fullerton's *Conception of the Infinite*. Ethics. [Prof. Fullerton. 3]

HISTORY.—Lectures on the Philosophy of History and on Modern History since 1789. [Prof. Thompson. 2]

ENGLISH.—Six Compositions. [Prof. McElroy.]

SOCIAL SCIENCE.—International Law (*Lectures*). Thompson's *Elements of Political Economy*. [Prof. Thompson. 3 hours, Second Term.]

ASTRONOMY.—Newcomb's Astronomy. [Dean Kendall. 3 hours, First Term.]

ELECTIVE,*—

A.

GREEK.—Demosthenes *De Corona*. Plato (*Apology* and *Crito* or *Phædo*). [Prof. Muhlenberg. 2]

LATIN.—Cicero (*Tusculanæ*) or Lucretius (*Selections*). Horace (*Ars Poetica*). Reading at Sight. [Prof. Jackson. 3]

HEBREW.—Selections from *Pentateuch*, *Psalms*, and *Prophets*. Syntax in Mitchell's Gesenius' *Hebrew Grammar*. Reading at Sight. [Prof. Peters. 2]

SANSKRIT.—Lanman's *Reader*. Selected Hymns from the Veda. [Prof. Easton. 2]

ANGLO-SAXON.—Sweet's *Orosius*. Cook's Sievers' *Grammar of Old English*. Skeat's *Principles of English Etymology*. [Prof. McElroy. 2]

* The same rule holds for the Senior electives as for the Junior. (See page 41, foot-note.)

Digitized by Google

GERMAN.—Goethe's *Faust*. History of German Literature. Practical Exercises in Speaking. [Prof. Seidensticker. 2]

FRENCH.—Modern Drama. Molière. [Mr. Rennert. 2]

REMARK.—In Hebrew, Sanskrit, Anglo-Saxon and French two classes will be formed each year, open to either Juniors or Seniors, according to proficiency.

B.

MATHEMATICS.—Advanced Differential and Integral Calculus. Differential Equations. [Prof. O. H. Kendall. 2]

PHYSICS.—Mathematical Physics. [Prof. Barker. 3]

ENGLISH.—Chaucer (*The Canterbury Tales*. Selections). Spenser (*Faëry Queene*, Book I.). Shakespeare (Three plays). Milton (Minor Poems). [Prof. McElroy. 3]

LINGUISTICS.—Whitney's *Language and the Study of Language*, with Lectures and Essays. [Prof. Easton. 1]

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat*.) [Prof. Jayne. 2]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Invertebrates. (Lectures). [Prof. Leidy. 1]

HISTOLOGY.—The Structure of Animal Tissues and Organs. (Schaffer's *Essentials of Histology*. Lectures.) [Prof. Ryder. 2 hours, First Term.]

GEOLOGY.—Stratigraphy, in connection with Palæontology of the Rock Systems. Laws of Dynamic Geology. (Dana's or Leconte's *Manual*.) [Prof. Koenig. 2]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

SPECIAL AND PARTIAL COURSES.

Students will be admitted to pursue, under the supervision of a standing committee of the Faculty, special studies in any subject taught in this Course, provided they can satisfy the professor teaching the subject that they are competent to profit by his instruction. With their special subject they must take at least two other subjects. At the close of such a *Special Course*, a certificate of proficiency in the subject elected will be granted, signed by all the professors whose instruction the student has attended.

Partial Courses, also, may be taken, consisting of such groups of studies (not constituting special courses) as the Faculty may sanction; but admission to a partial course is to be considered an exceptional arrangement, and may be withdrawn when deemed expedient. A Certificate, stating what studies have been pursued, will be awarded to those who complete such a course satisfactorily.

Digitized by Google

DEGREES.

The Degree of Bachelor of Arts is conferred on students who complete satisfactorily the full course.

The Degree of Master of Arts is conferred on Bachelors of Arts of the University, of not less than three years' standing, who have pursued liberal studies since their graduation, and who present a satisfactory Thesis to the Faculty. This Thesis must be sent to the Dean by the first Friday in April.

For further information see pp. 34–39, or address Prof. E. O. KENDALL, LL.D., Dean of the Faculty.

THE COURSES

IN THE

TOWNE SCIENTIFIC SCHOOL.

The object of this School (named from its largest benefactor, John Henry Towne) is to give a thorough scientific education with technical training.

The studies of Freshman and Sophomore years differ little from those of the course in Arts, except in the languages pursued and in Mathematics and Drawing. (See p. 34.)

The Technical Courses of Instruction cover the three last years, termed Junior, Senior, and Post-Senior. Of these, the last is in the main practical. The Courses are:—

I. CHEMISTRY AND MINERALOGY.
II. METALLURGY AND MINING.
III. CIVIL ENGINEERING.
IV. DYNAMICAL ENGINEERING.
V. MECHANICAL DRAWING AND ARCHITECTURE.

Duly authenticated graduates of other Colleges are admitted without examination to any of the Technical Courses in the Towne School, upon giving evidence that their studies have been such as to fit them to pursue the particular course for which they apply. Candidates, not graduates of other Colleges, must pass a satisfactory examination in the studies of the previous years.

ENTRANCE EXAMINATIONS.

For the FRESHMAN CLASS candidates are examined in the following subjects:—

Digitized by Google

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane and Solid Geometry.

ENGLISH.—Grammar, Etymology and Composition.

The examination will include: 1st. The grammatical analysis of a simple passage in prose or verse; 2d. The correction of specimens of English bad in grammar or expression, with a brief statement of the principles on which the correction is made; 3d. The etymological analysis and synthesis of familiar English words, together with questions on the history of English and its relationship in the Indo-European family of languages; 4th. A short composition, correct in spelling, punctuation, grammar, expression, and division by paragraphs, on one of several subjects to be taken from the last named of the following books, all of which (or the last named and equivalents for the other three) must have been read by each candidate, viz., Alexander Smith's *On the Writing of Essays* and *A Shelf in my Book-case* (*Dreamthorpe*, pp. 21–45, and 187–210); Kingsley's *Hereward, the Last of the English;* Shakespeare's *As You Like It;* and Scott's *Rob Roy.*

The following books indicate the amount and the kind of knowledge required to pass this examination, viz., Abbott's *How to Parse*, Whitney's *Essentials of English Grammar*, or Murray's *Advanced Lessons in English Composition, Analysis and Grammar;* McElroy's *Essentials* of *English Etymology;* and Abbott's *How to Write Clearly.*

The subject of composition in 1889 will be taken from the last named of the following works, viz.: Shakespeare's *As You Like It* and *Midsummer Night's Dream*, Scott's *Rob Roy*, and Thackeray's *English Humorists.*

In 1890 the books will be Scott's *Quentin Durward*, Thackeray's *English Humorists*, Shakespeare's *Midsummer Night's Dream*, and Goldsmith's *Deserted Village.*

LATIN (elective with either French or German).—Cæsar, *Commentaries*, 3 books; Virgil, *Æneid*, 3 books; Latin Prose Composition.

FRENCH.—Grammar (as much as is indicated by the first forty-five "Practical Exercises" appended to Harrison's *French Syntax*). *Télémaque* (the three first books or an equal amount of matter from any good modern prose author).

GERMAN.—Ahn's *Method, Fisher's edition* (*First Course, pp.* 1–100; *Second Course, pp.* 1–64). Grimm's *Märchen* (Otis's Edition).

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Scudder or Johnston is suggested).

For ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes.

PRELIMINARY EXAMINATIONS.—Candidates who wish to do so may be examined one year in advance of their entering college in any or all of the following subjects, namely, Arithmetic, Algebra (subjects contained in the first eleven chapters of Wentworth), Plane Geometry; Latin Gram-

Digitized by Google

mar and Prose Composition; French, German and English Grammar; History of the United States. A record will be kept of these examinations, and credit be given for such of them as are passed satisfactorily.

The examinations are held in June and September. Preliminary examinations are ordinarily held only in June. Circulars stating the days and the subjects of examination for each day can be had, after April 1st, on application to Mr. OTTO REUNING, Clerk to the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

MATHEMATICS.—Wells' *Algebra.* Chauvenet's *Plane and Spherical Trigonometry.* Bowser's *Analytical Geometry* begun. [Prof. O. H. Kendall and Mr. Crawley. 5*]

DRAWING.—Geometrical and Isometrical Drawing (Minifie), and Drawing from the Flat. Free Hand Sketching. Use of the Scale and Protractor. Shading in India Ink. Graphical representations from Geometry. [Prof. Richards. 3]

HISTORY.—Myers' *Mediæval and Modern History.* [Mr. Cheyney. 2]

ENGLISH.—Rhetoric (McElroy's *Structure of English Prose*). Readings from an English prose author, with Compositions on Themes selected from these Readings. [Mr. Schelling. 2]

DECLAMATION.—Exercises in Reading and Speaking with special reference to Expression, Emphasis, and Voice Culture. [Prof. McElroy. About once in three weeks.]

GERMAN.—Review of Grammar. *Fünftes Lesebuch* (Van Antwerp, Bragg & Co., publishers.) Storm's *Immensee.* [Mr. Rennert. 4)

FRENCH.—Harrison's French Syntax. Modern French Prose. Bôcher's *French Plays.* [Prof. Easton and Mr. Rennert. 4]

LATIN.†—Sallust, Cicero, Horace. [Mr. Cheyney. 3]

SOPHOMORE CLASS.

MATHEMATICS.—Descriptive Geometry. Bowser's *Analytical Geometry.* Elementary Differential Calculus. [Mr. Crawley. 5]

PHYSICS.—Mechanics. [Mr. Goodspeed. 2 hours, Second Term.]

CHEMISTRY.—Inorganic Chemistry (Experimental Lectures). [Prof. Sadtler. 3]

DRAWING.—Linear Perspective. Geometric and Isometric Drawing. Projection of Shadows. Architectural Detail and Ornament. Gothic Tracery. Shading in India Ink. Free Hand Drawing. [Prof. Richards. 3]

---

* Hours per week. † Elective with either French or German.

Digitized by Google

ENGLISH.—Gummere's *Poetics.* Lectures on the History of the English Language with special reference to Historical English Grammar. (Lounsbury's *English Language.* Sweet's *Anglo-Saxon Primer.*) Six Compositions. Two or more Declamations. [Mr. Schelling. 2]

GERMAN.—Selections from Virchow and Hotzendorff's *Wissenschaftliche Vorträge.* Practical Exercises. Specimens of the modern Drama. [Prof. Seidensticker. 4]

FRENCH.—Modern Prose (continued). Molière. [Prof. Easton and Mr. Rennert. 4]

LATIN.*—Selections from Latin History, Correspondence and Poetry. Mr. Cheyney. 3]

TECHNICAL COURSES.

JUNIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

PHYSICS.—Sound, Heat, Light, and Electricity. (Lectures and Recitations.) [Prof. Barker. 4]

GERMAN.†—Scientific Essays. Schiller's *Poems.* [Prof. Seidensticker. 2]

FRENCH.†—Racine or Corneille. Molière. [Prof. Easton. 2]

ENGLISH.—Critical Study of English Prose Authors, with special reference to Composition. Six Compositions. [Prof. McElroy. 2]

HISTORY.‡—Political and Social History of Recent Times. [Mr. Cheyney. 2]

LOGIC.‡—Jevons's *Lessons in Logic.* Ethics. [Prof. Fullerton. 2]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

1. *Studies pursued by the Chemical Section.*

CHEMISTRY.—Laboratory Practice and Recitations. Douglass and Prescott's *Qualitative Analysis.* [Prof's. Genth and Genth, Jr. 12] Lectures on Organic Chemistry. [Prof. Sadtler. 2]

MINERALOGY.—Crystallography. Native Elements and Sulphides. [Prof. Kœnig. 2]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING.—Construction of parts of Mines, and of Mining machinery, from notes and sketches. [Prof. Kœnig. 5]

MINERALOGY.—Same as First Section. [Prof. Kœnig. 2]

GEOLOGY.—Lithology; Palæontology of Protozoa, Anthozoa, and Echinodermata. [Prof. Kœnig. 1]

SURVEYING AND DRAWING.—The same as Third Section.

MATHEMATICS.—Differential and Integral Calculus. [Mr. Crawley. 3]

CHEMISTRY.—Qualitative Analysis. [Prof's. Genth and Genth, Jr. 5]

---

* Elective with either French or German.
† Elective with each other.
‡ The Metallurgical and Mining Section (Sec. 2), is excused from this study.

Digitized by Google

3. *Studies by the Civil Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus. [Mr. Crawley. 3]

ENGINEERING.—Railroad Location. Spherical Projections, Shades, Shadows, and Perspective. [Messrs. Evans and Haupt, Jr. 2]

STATICS.—Roof and Bridge Trusses, and Merriman's *Mechanics of Materials*. [Messrs. Evans and Franklin. 4]

DRAWING.—Topographical Charts, in ink and colors. Details of frames, joints, etc. [Prof. and Mr. Haupt. 2]

SURVEYING.—Field Practice, including Chain Surveying, Use of Compass, Transit and Plane Table in measuring lines and areas, Traversing, Location of Roads, Drains, etc., on Topographical Charts. Recitations from Gillespie's *Land and Higher Surveying*, and *Earthwork Formulæ*, Hydrographical, Mine, and Government Surveying. [Prof. Haupt. 4]

CHEMISTRY.—Qualitative Analysis. [Prof's. Genth and Genth, Jr. 3]

4. *Studies pursued by the Dynamical Engineering Section.*

MATHEMATICS.—Differential and Integral Calculus. [Mr. Crawley. 3]

STATICS.—The application of the principles of Statics to Rigid Bodies. The Elasticity and Strength of Materials. Forms of uniform strength. Theory of Framed Structures. Stability of structures. Theory of the Arch. Strains in parts of mechanism. The Equilibrium and Pressure of fluids, as water, air, steam, etc. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of Hydrometers, Manometers, Gauges, etc. The Equilibrium of Funicular Structures. [Prof. Marks. 3]

KINEMATICS.—Slide, Valve, and Link motions. General mathematical theory of Kinematics. [Prof. Spangler. 3]

DRAWING.—Copies of bolts and nuts; riveting; gudgeons, pivots, axles, shafts, couplings, pillow-blocks; shaft-hangers, pulleys, sheaves and gear-wheels; connecting rods and cranks, working beams, crossheads, pipe connections, valves, steam cylinders, pistons, stuffing-boxes, glands, etc., etc.

ENGINEERING.—Graphical Statics. Manual training in Pattern and Machine shop work.

5. *Studies pursued by the Architectural Section.*

ARCHITECTURE.—Classical Architecture and Mediæval Ornament. Shading in India ink. Sketching. [Prof. Richards. 9]

MATHEMATICS.—Differential and Integral Calculus. [Mr. Crawley. 3]

ENGINEERING.—Graphical Statics. [Mr. Franklin. 2]

SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

PHYSICAL SCIENCE.—Practical Physics. [Prof. Barker. 3]

ASTRONOMY.—Newcomb's *Astronomy*. *[Dean Kendall. 3 hours, First Term.]

Digitized by Google

ENGLISH.—Four Compositions. [Prof. McElroy.]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

SOCIAL SCIENCE.—International Law (Lectures.) Thompson's *Elements of Political Economy*, and Lectures. [Prof. Thompson. 3 hours, Second Term.]

METALLURGY.—Theory of Metallurgical Processes. Theory of Dressing and Mechanical Treatment of Ores. [Prof. Kœnig. 1]

MATHEMATICS.—(*Optional.*) Methods of Computation. [Prof. O. H. Kendall. 1]

1. *Studies pursued by the Chemical Section.*

QUALITATIVE ANALYSIS.—Examination of more or less complex substances. Detection of the rarer elements and organic constituents of bodies. Qualitative analysis by the blow-pipe, in connection with reactions in the humid way, for the rapid determination of minerals and ores. Use of the Spectroscope.

QUANTITATIVE ANALYSIS.—Lectures, Recitations, and Laboratory Practice in gravimetric and volumetric analysis. Assaying of Ores and Fuels. [Prof's. Genth and Genth, Jr. 14]

APPLIED CHEMISTRY.—Instruction in the practical production of Salts, etc., in their greatest perfection and purity. Lectures. [Prof. Genth, Jr. 1]

ORGANIC CHEMISTRY.—Making of organic preparations. Proximate and Ultimate Organic Analysis. [Prof. Sadtler. 2]

THEORETICAL CHEMISTRY. Lectures. [Prof. Genth, Jr. 1]

MINERALOGY AND ASSAYING.—The same as Second Section. [Prof. Kœnig. 4]

METALLURGY.—Theory of Metallurgical processes; theory and construction of furnaces and other apparatus. Dressing of Ores, considered theoretically and practically. Demonstration of principal metallurgical processes by furnace practice. [Prof. Kœnig. 2]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING ENGINEERING.—Lectures on the methods used in prospecting for, and in developing ore and coal deposits. Drawing and modeling (wood and plaster) of topographical and underground surveys. [Prof. Kœnig. 4]

METALLURGY.—Calculating and drawing of furnaces, ore dressing machines, etc., from notes and sketches, after approved patterns. Experimental treatment of the fundamental processes of oxidation, reduction, and fusion. [Prof. Kœnig. 2]

MINERALOGY.—Oxides, Chlorides, and Fluorides, Sulphates, etc., Phosphates, etc., Carbonates and Silicates. [Prof. Kœnig. 4]

ASSAYING and Blow-pipe Analysis.—[Prof. Kœnig. 2]

ANALYTICAL CHEMISTRY.—Qualitative examinations of more or less complex substances. Qualitative analysis by the blow-pipe, in connection with reactions in the humid way, for the rapid determinations of min-

Digitized by Google

erals and ores. Lectures, Recitations, and Laboratory Practice in Quantitative Analysis. [Prof's. Genth and Genth, Jr. 9]

PALÆONTOLOGY of Mollusca and Crustacea.—[Prof. Kœnig. 1]

3. *Studies pursued by the Civil Engineering Section.*

DRAWING.—Shades, Shadows, and Perspective; Platting field notes; Engineering Construction and Stereotomy. [Prof. and Mr. Haupt. 2]

ARCHITECTURE.—Ornament. History of Architecture. Decoration and Shading. [Prof. Richards. 4]

SURVEYING.—A complete course in practical topography, including special instruments and field sketching. Field practice. Reconnaissance, Use of Prismatic Compass, Level, Solar Transit, Repeating Theodolites, and Heliotropes. Sketching. [Messrs. Franklin and Evans. 3]

GEODESY.—Measurement of Bases, Triangulation, Determination of Meridian, Latitude, Longitude, Time, and Azimuth. [Prof. Haupt. 1]

ENGINEERING.—Mechanics of Engineering, embracing the Statics of Rigid Bodies, Determination of the Centres of Gravity, Moments of Flexure, Rupture, Resistance, Torsion, Strength and Properties of Materials, etc. Nomenclature of, and Construction in Masonry, Timber, Iron, and Steel, as applied to Light-houses, Bridges and Roofs, Depots and other engineering structures. Equilibrium of Arches and Retaining Walls. Tunnelling and Earthworks, with the required plant and organization. Sea-coast and Harbor improvements. Canal and River improvements. Transportation, etc. [Prof. Haupt and Assistants. 7]

MINERALOGY.—With Second Section. [Prof. Kœnig. 2]

BLOW-PIPE ANALYSIS.—(*Voluntary.*)

4. *Studies pursued by the Dynamical Engineering Section.*

KINEMATICS.—Laws of motion. Elementary combinations of Pure Mechanism. Pulleys and belts. Trains of gearings and forms of teeth of wheels. Parallel motions. Practical design of link and valve motions, with a consideration of the various forms of valves, illustrated by working models. [Prof's. Marks and Spangler. 4]

DESIGNING.—Determination of proper proportions for cylinders, valves, pistons, rods, shafts, flywheels, and making rough sketches and working drawings from the model and from original designs.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Occasional visits of inspection will be made to blast-furnaces, foundries, iron and steel-rolling mills, ship-yards, steam and hydraulic forges, etc. Manual training in Machine Shop work.

DYNAMICS.—Lectures on the conditions under which Power is transmitted. [Prof. Marks. 4]

HYDRODYNAMICS.—Water metres. Turbine, Overshot, Undershot, and Breast wheels. [Prof. Marks. 3]

5. *Studies pursued by the Section in Drawing and Architecture.*

DRAWING AND ARCHITECTURE.—The study of Executed Works and of Buildings in Progress. History of Architecture, illustrated by views of structures of all ages. Ornaments. Shading in India Ink. Sketching. [Prof. Richards. 14]

Digitized by Google

BOTANY.—Laboratory work. [Prof. Rothrock. 3]

ENGINEERING.—Same as Section 3, so far as to include strength and properties of materials. [Prof. Haupt. 2]

POST-SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

GEOLOGY.—Structural Geology of North America with reference to that of Europe, and with the principal minerals and fossils, distribution of metals and fuels. History of Geology. [Prof. Kœnig. 2]

1. *Studies pursued by the Chemical Section.*

Theoretical Chemistry. [Prof. Genth, Jr. 1]

Lectures on Industrial Chemistry, with Excursions to Works. [Prof. Sadtler. 2]

Practice in the production of Chemical preparations.

Quantitative Gravimetric Analysis of the simple and complex salts and minerals. Volumetric Analysis and preparation of normal solutions. Gas Analysis. Lectures continued.

Determination of the constituents of cast-iron and steel. Analysis of Manures. [Profs. Genth and Genth, Jr. 15]

Quantitative Blow-pipe Analysis. Original investigations. [Prof. Kœnig. 2]

Special Metallurgy—Lectures with the 2d Section. [Prof. Kœnig. 4]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING ENGINEERING.—Lectures on Ventilation and drainage of mines. Special mining problems in faulted strata, more especially in coal mining. The section goes for two weeks to the anthracite Coal region, to make an underground survey; to learn how to examine a mine and report on its condition. [Prof. Kœnig. 2]

METALLURGY.—Lectures on the production of pig, weld, and temper iron; of silver, copper, and lead. Experimental testing of metallurgical processes. Electricity applied to metallurgy. Visits to metallurgical works in the City and State. [Prof. Kœnig. 4]

DYNAMICAL ENGINEERING.—Principles of Mechanism. Waterwheels and steam engine. Water and steam motors. Rock drills. [Prof. Marks. 1]

GEOLOGY.—The topographic and structural relations of the principal ore deposits in America and Mexico. [Prof. Kœnig. 7]

ANALYTICAL CHEMISTRY.—Gravimetric and Volumetric Analysis, with special reference to minerals, ores, and metallurgical products; Gas Analysis; Quantitative blow-pipe analysis. Lectures continued. [Prof. Genth. 7]

3. *Studies pursued by the Civil Engineering Section.*

PRACTICAL ENGINEERING.—Observation tours, for collection of data, and critical reports on works in process of construction. Estimates of cost, prices of labor and materials. Construction and arrangement. Preparation of contracts and specifications. Theses for graduation. Sani-

Digitized by Google

tary Engineering. [Prof. Haupt. 9] Laws of Business and of Contracts. [Mr. Haupt. 1]

DRAWING.—Details of Engineering Works, Composition, Plans, Sections, Elevations; Profiles and Cross-sections. Working drawings from data collected in the field. [Prof. Haupt. 6]

HYDROMECHANICS.—Recitations and Lectures. [Prof. Haupt. 1]

MODELLING.—Construction of trusses for bridges and roofs, girders, etc. Problems in stone-cutting. Tunnels. [Prof. Haupt. 2]

ARCHITECTURE.—Shading, Decoration. History of Architecture (continued).

4. Studies pursued by the Dynamical Engineering Section.

THE ANALYSIS AND SYNTHESIS OF MECHANISM.—Machine Tools and their principles. [Prof. Spangler. 2]

HYDRODYNAMICS.—Special experimental work in Dynamic Laboratory. [Prof. Marks. 5]

THERMODYNAMICS.—Values of Fuels. Strength, safety, and evaporative power of boilers. Steam and its properties. The Mechanical Theory of Heat. Stationary, locomotive, and marine Steam Engine. Practical Laboratory work, including testing boilers, engines, gauges, indicators; determining duty of pumps, injectors; calorimetric work. [Prof. Spangler. 8]

ELECTRODYNAMICS.—Measurement of transmission of power by Electricity, etc. [Prof. Marks. 3] Practical Laboratory work. Special instruction when desired. [Mr. Hering. 6]

LECTURES ON, AND USE OF, INSTRUMENTS.—Steam Engine Indicator. Planimeter. Dynamometer. Odontograph. Slide Rules. Arithmometers. Trammel and Testing Machines. Peaucellier's Compound Compass. Practical use of instruments.

MARINE ENGINEERING and NAVAL ARCHITECTURE.—Special instruction when desired.

CONSTRUCTION AND PRACTICAL APPLICATIONS.—Occasional visits of inspection will be made to blast-furnaces, foundries, machine-shops, iron and steel rolling-mills, ship-yards, steam and hydraulic forges, etc., etc.

DRAWING.—Original Designs. Designs and Calculations for special machines. Detailed working drawings, with specifications.

THESES.—Special attention will be given to experimental work in preparation of Theses for Technical Degrees.

5. Studies pursued by the Section in Architecture and Drawing.

ARCHITECTURE.—Elements of design and principles of composition. Ornament of all styles. Sketching and measurement of works executed and in progress, building materials and processes. Specifications. Contracts. History of Architecture (concluded).

DRAWING.—Plans, Elevations, and Sections of original designs. Exercises with perspective Views. Water-color. Sketching.

ENGINEERING.—Studies of Construction in Masonry, Timber, Iron and Steel; of Roof Trusses, Girders, etc. Experiments on Strength of Materials, Beams, and Trusses.

Digitized by Google

METHODS OF STUDY.

For the first two years, all studies are required, and are nearly the same for all students. The technical courses begin with the Junior year.

Instruction is thoroughly practical. It is given by lectures and recitations, and in the Laboratories and the Drawing and Model Rooms. These are open to the students all day, and work is required of the higher classes in the afternoon as well as in the forenoon.

In CHEMISTRY, the Juniors, having already had during Sophomore year a full course of illustrated lectures on general inorganic chemistry, receive instruction in organic chemistry, mineralogy and qualitative analysis.

They also begin work in the laboratories by making the characteristic reactions of inorganic bases and acids—which are followed by easy qualitative separations. Occasional written reports on the results of their work must be made.

The Seniors receive instruction by lectures and recitations in all branches of qualitative and quantitative analysis, applied chemistry, metallurgy, organic and theoretical chemistry.

In the laboratories the practical work, embracing all of the above branches, is continued. A thesis on some chemical subject is required at the end of the year.

During the first term of the Post-Senior year, the work of the Seniors may be continued, if deemed advisable. In the meanwhile the subject for thesis must be chosen in order to allow the student time to read up all accessible matter relating to it, so that the greater portion of the second term can be devoted almost exclusively to the necessary experimental researches.

The Post-Seniors also attend a course of lectures on the applications of Organic Chemistry in the Industrial Arts. This course is fully illustrated by lantern projections, and by suites of specimens from the chemical collections. The class also makes excursions to chemical works.

Students in METALLURGY and MINING are trained to take intelligent care of the ever growing, important interests represented by those industries. In recognition of the extent of knowledge embraced in this field, the students are given the option of devoting themselves more particularly to either branch. Those inclining to become managers of mines, or examining and reporting engineers, will take more studies in civil and mechanical engineering, and those who possess greater aptitude for chemical studies will devote themselves rather to experimental Metallurgy; whilst the lectures provided for the course are participated in by all.—A greater thoroughness is expected to result from this provision. The instruction aims to develop the student's power of self-action and initiative.

Digitized by Google

Students in CIVIL ENGINEERING are instructed by recitations, lectures, and practical work, in order to develop the qualities most required of the practical engineer. Afternoons and Saturdays are devoted to drawing and practical work in the shop, or to surveying or visiting public or private works, manufactories, etc.

During the last year, the student's time is devoted largely to examinations and reports upon engineering works in process of construction; to making estimates and designs for new projects, from data collected in the field; and to the preparation of Theses.

In *visiting shops and manufactories*, students are required to collect all the practical information possible, and to embody it in a written report, noting particularly any new or special features for economizing time or materials, improved methods of assembling parts, etc., as well as the general plant, apparatus, and facilities for receiving and shipping materials.

The *field practice* embraces the various problems in chain surveying, the measurement of areas, and the computation of results; line surveys and location, cross sections and levels for estimating quantities, hydrography, topography with the plane-table, and the solution of such geodetic problems as relate to the orientation of maps.

The *Course in Drawing* includes the projection of maps; various methods of representing Topography; conventional signs; problems in shades, shadows and perspective; details of framing; composition; general drawing for constructions in wood, stone, and iron; special designs; working drawings for modelling; platting; drawing of profiles and cross sections, and drawing for theses.

Students of DYNAMICAL ENGINEERING are required to give particular attention to the kinematics of mechanism, to the conditions under which work and power act, and the means of regulating and transmitting the same; to the problems of hydraulics and hydraulic motors, and to the mechanical theories of heat and electro-dynamics with applications to the steam engine, etc., as will appear from the detailed course of study already given.

Special attention is given to the execution of drawings, first from designs and models, and afterwards from calculation; and also to the methods of casting and working in iron, and of making and using machine tools.

Adequate instruction is also provided in Marine Engineering and Naval Architecture.

Special instruction in that part of Electrical Engineering which requires a knowledge of Dynamics is given to those who wish it in Post-Senior year. For this course a certificate of proficiency will be awarded, in addition to the Degree of Mechanical Engineer.

Digitized by Google

A special Laboratory is devoted to measurements in Thermodynamics, Electrodynamics, and Hydrodynamics.

The course in manual training covers three afternoons a week for two years. The third year is given to practical work in the Dynamic Laboratory, to special technical work, and to the preparation of a Thesis.

The instruction in PHYSICS extends over three years. In Sophomore year, the class studies the Mechanics of Physics. In Junior year the subjects treated are Sound, Heat, Light, and Electricity, the exercises consisting of lectures, illustrated by experiments, with recitations. In Senior year, instruction is given in Physical Measurement. Instruction in the Physical Laboratory is maintained throughout the year. The course is elective and is intended for such students only as are competent to take it with advantage.

SPECIAL COURSES.

Special students, not candidates for a degree, may be received into any of the courses, when the Professor in charge of that course is satisfied of their competency to profit by his instruction. They take all the studies that the Professor thinks necessary to complete the course, together with such others as the Faculty may require. At the end of the course, upon passing the examinations required, and presenting a satisfactory thesis, they receive a Certificate of Proficiency. Application should be made to the Professor in charge of the course which the student wishes to take, and definite arrangements may be made with him—subject, however, to the approval of the Faculty.

LIBRARY.

The Evans Rogers Library is composed of standard works treating of drawing, mathematics, astronomy, physics, surveying and explorations, technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering; together with a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams and drawings.

DEGREES.

The Degree of *Bachelor of Science* (*B.S.*) is conferred on students who have passed satisfactorily the first four years of the curriculum of this School. At the close of the fifth year an additional degree is conferred, indicating the Special Course pursued by each student. These Special Degrees are *Practical Chemist* (P.C.), *Mining Engineer* (E.M.), *Civil Engineer* (C.E.), *Mechanical Engineer* (M.E.), and *Architect* (Archt.) A satis-

Digitized by Google

factory Thesis must be prepared and presented by each Candidate for a Degree.

For further information see pp. 34–39, or address Professor E. O. KENDALL, LL.D., Dean of the Faculty.

A COURSE IN PHILOSOPHY FOR UNDERGRADUATES.

This course provides instruction in English, Mathematics, Natural Science, and any two of the three following languages, Latin, French, German. During Junior and Senior years, a large amount of time is devoted to Biological studies, with practical laboratory work, under Prof. Joseph Leidy, Director of the Biological Department, and the other members of the Biological Faculty. The new Biological building, with its lecture-rooms, laboratories for general and special work, its cabinets, herbarium, library, and abundant supples of material for practical work, affords ample facilities for these studies.

ENTRANCE EXAMINATIONS.

For the Freshman Class, candidates are examined in the same subjects as are required for admission to the Towne Scientific School (see pp. 45–46).

For ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes. The examinations are held in June and September; preliminary examinations ordinarily only in June. Circulars stating the days and the subjects of examination for each day can be had after April 1st, on application to Mr. OTTO REUNING, Clerk to the College Faculty.

COURSE OF STUDY.

FRESHMAN CLASS.

ENGLISH.—Rhetoric (McElroy's *Structure of English Prose.*) Readings from an English prose author, with Compositions on Themes selected from these Readings. [Mr. Schelling. 2]

DECLAMATION.—Exercises in Reading and Speaking with reference to Expression, Emphasis, and Voice Culture. [Prof. McElroy. About once in three weeks.]

HISTORY.—Myer's *Mediæval and Modern History.* [Mr. Cheyney. 2]

GERMAN.—*Fünftes Lesebuch* (Van Antwerp, Bragg & Co., Publishers). Storm's *Immensee.* [Mr. Rennert. 4]

FRENCH.—Modern French Prose. [Mr. Rennert. 4]

LATIN.*—Sallust, Cicero, and Horace. [Mr. Cheyney. 3]

* Elective with either German or French.

Digitized by Google

MATHEMATICS.—Wells' *Algebra.* Chauvenet's *Trigonometry.* [Prof. O. H. Kendall and Mr. Crawley. 5]

DRAWING.—Freehand Drawing. [Prof. Richards. 3]

SOPHOMORE CLASS.

ENGLISH.—Gummere's *Poetics.* Lectures on the History of the English Language, with special reference to Historical English Grammar. (Lounsbury's *English Language.* Sweet's *Anglo-Saxon Primer.*) Six Compositions. Two or more Declamations. [Mr. Schelling. 2]

HISTORY.—American History. [Mr. Cheyney. 2]

GERMAN.—Selections from *Virchow & Holtzendorff's Wissenschaftliche Vorträge.* Practical Exercises. Specimens of the Modern Drama. [Prof. Seidensticker. 4]

FRENCH. Modern French Prose. Molière. [Prof. Easton. 4]

LATIN.*—Selections from Latin History, Correspondence and Poetry. [Mr. Cheyney. 3]

MATHEMATICS.—Analytical Geometry. [Mr. Crawley. 3]

PHYSICS.—Mechanics. [Prof. Barker. 2 hours, Second Term.]

CHEMISTRY.—Inorganic and Organic Chemistry (Experimental Lectures, with Examinations). [Prof. Sadtler. 3]

JUNIOR CLASS.

REQUIRED,—

LOGIC AND PSYCHOLOGY.—Jevon's *Lessons in Logic.* Ethics. Lotze's *Outlines of Psychology.* Lectures on Psychology. [Prof. Fullerton. 2]

ENGLISH.—Critical Study of English Prose Authors, with special reference to Composition. Six Compositions. [Prof. McElroy. 2]

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.*) [Prof. Barker. 4]

CHEMISTRY.—Inorganic Analytical Chemistry. (Lectures and Laboratory Exercises.) [Prof. Genth. 4]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Vertebrates. (Lectures.) [Prof. Leidy. 1]

GENERAL BIOLOGY.—Careful Study in the Laboratory of a Series of Plants and Animals. (Dolley's *Syllabus.*) [Prof. Dolley. 8]

ELECTIVE,†—

HISTORY.—Political and Social History of Recent Times. [Mr. Cheyney. 2]

MINERALOGY.—The Systematic Description of Mineral Species. Their Geometric and Physical Properties. (Dana's *Manual.*) [Prof. Kœnig. 2]

ORGANIC CHEMISTRY.—Lectures. [Prof. Sadtler. 2]

---

* Elective with either German or French.

† Of the elective studies each Junior or Senior must take enough to make his total number of hours per week not less than twenty-four nor more than twenty-six.

Digitized by Google

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat.*) [Prof. Jayne. 2]

BOTANY.—Elementary Laboratory Exercises in Structural and Systematic Botany. (Gray's *Text-Book* and *Manual.*) [Prof. Wilson. 4 hours, First Term. Prof. Rothrock. 4 hours, Second Term.]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

SENIOR CLASS.

REQUIRED,—

PHILOSOPHY AND ETHICS.—Berkeley's *Principles of Human Knowledge.* Studies in the History of Philosophy. Fullerton's *Conception of the Infinite.* Ethics. [Prof. Fullerton. 3]

SOCIAL SCIENCE.—International Law. (Lectures.) Thompson's *Elements of Political Economy.* [Prof. Thompson. 3 hours, Second Term.]

ENGLISH.—Chaucer (*The Canterbury Tales*, Selections). Spenser (*Faëry Queene*, Book 1). Shakespeare (Three Plays). Milton (Minor Poems). Six Compositions. [Prof. McElroy. 3]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Invertebrates. (Lectures.) [Prof. Leidy. 1]

ELECTIVE,—

ASTRONOMY.—(Newcomb's *Astronomy.*) [Dean Kendall. 3 hours, First Term.]

ORGANIC CHEMISTRY.—Laboratory Exercises in making Organic Preparations. [Prof. Sadtler. 2]

GEOLOGY.—Stratigraphy in connection with Palæontology of the Rock Systems. Laws of Dynamic Geology. (Dana's or Leconte's *Manual.*) [Prof. Kœnig. 2]

ANATOMY.—Demonstrations of Anatomy of the Typical Mammal. (Mivart's *The Cat.*) [Prof. Jayne. 2]

ANATOMY.—The Demonstrations with a Course in Dissection. [Prof. Jayne. 8]

ZOÖTOMY.—Practical Exercises in Comparative Anatomy. [Prof. Jayne. 4]

HISTOLOGY.—The Structure of Animal Tissues and Organs. (Schaffer's *Essentials of Histology.* Lectures.) [Prof. Ryder. 2 hours, First Term.]

HISTOLOGY.—The Lectures with Laboratory Exercises. [Prof. Ryder. 8 hours, First Term.]

EMBRYOLOGY.—The Principles of Comparative Embryology. (Lectures.) [Prof. Ryder. 2 hours, Second Term.]

EMBRYOLOGY.—The Lectures with Laboratory Work on the Development of the Chick and the Rabbit. (Foster and Balfour's *Elementary Embryology.*) [Prof. Ryder. 8 hours, Second Term.]

PHYSIOLOGY.—Lectures and Demonstrations. [2]

Digitized by Google

BOTANY.—General Principles of Structural and Physiological Botany. (Lectures. Gray's *Text-book of Botany*.) [Prof. Rothrock. 1]

BOTANY.—Economic Botany. (The Plants used in Medicine. The Adulteration of Foods and Drugs.) Laboratory Exercises. [Prof. Rothrock. 6 hours, Second Term.]

BOTANY.—Advanced Laboratory Course in Structural Botany. [Prof. Wilson. 6 hours, First Term.]

BOTANY.—Laboratory Exercises in Plant Physiology. [Prof. Wilson. 6 hours, Second Term.]

DECLAMATION (*Voluntary*).—Exercises in Debating and Original Speaking. [Prof. McElroy. About once in two weeks.]

At the close of Sophomore Year, students may elect to enter the Junior Class in the Course in Arts or in the Wharton School, or, on showing their competency, may take any one of the Technical Courses in the Towne Scientific School.

Instruction is given by lectures and recitations, and in the Laboratories of the College and Biological buildings. The latter are open all day, a part of the work by the higher classes being done in the afternoon. Latin, History, Philosophy, Mathematics, and the Physical Sciences are assigned in proportions suited to the general purpose of the Course. French and German receive special attention in the two first years, with a view to the effective use of text-books in these languages in Junior and Senior years.

The study of the English Language and Literature extends through the four years, and is intended to be thorough and critical. In Chemistry, the Sophomores attend illustrated lectures on Inorganic and Organic Chemistry, followed in the Junior year by a course of analytical work in the Laboratory.

The instruction in General Biology is in the form of practical laboratory exercises, accompanied by explanatory lectures, and comprises the study of the structure, functions, and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena, manifested in the different forms of living matter, before beginning the study of either Botany or Zoölogy. The series studied are: (1) Amœba, Paramœcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Bracken-fern, and Bean-plant as exhibiting the structure and activities of plants; (3) These compared with Sponge, Hydra, Star-fish, Earthworn, Leech, Cyclops, Crayfish, Cockroach, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, Pigeon, and Rabbit as animals.

The course of Mammalian Anatomy consists of lectures on the methods of anatomical investigation, a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy.

The work in Botany during the Junior year consists in the study of the microscopic structure of plants, followed by practical exercises in determining a selected series of forms.

Digitized by Google

In the first term of the Senior year all students electing Botany study the microscopic structure of tissues and organs. In the second term a further election is permitted between Economic Botany and Physiological Botany. The work in the first course consists of practical exercises in forestry, adulterations of foods and drugs, medicinal plants, etc.; in the second course, the life history of plants is carefully studied.

The lectures on Systematic Zoölogy begin in the Junior and continue through the Senior year. They embrace the structure, classification and distribution of animals, one year being devoted to the study of the invertebrates, the next to the vertebrates. The laboratory course in Zoötomy consists in the direction of additional types, of series of organs, or special parts chosen by the instructor.

Histology is taught, during the first term in the Senior year, mainly by practical work with the microscope. The structure of animal tissues and organs, and the methods of examining and preparing microscopic specimens, are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists of lectures on the Embryology of the chick, with laboratory exercises in the preparation and study of the principal stages of development.

The instruction in the elements of Human and Comparative Physiology embraces the following subjects: nutrition, food-stuffs and digestion; circulation; respiration; reproduction; muscular function, including locomotion, speech, etc.; and the functional activity of nerve and brain.

DEGREES.

The Degree for the full course is Bachelor of Philosophy (Ph.B.), but students who have taken their two first years in the Course in Arts or in that in Science receive (respectively) Bachelor of Arts (A.B.) and Bachelor of Science (B.S.).

THE COURSE IN FINANCE AND ECONOMY

IN THE

WHARTON SCHOOL.

One of the prominent objects of this course is to give a thorough, liberal, and professional training to young men who intend to engage in business, or upon whom will devolve the management of property. It also equips more completely persons who are preparing for active business life, for

Digitized by Google

Journalism, or for Public Service, for teaching History and Political Science, and for the study of Law. A no less important object is to provide, in the words of its founder, adequate education in the principles underlying successful civil government.

LIBRARY.

The University possesses a large and valuable library of works relating to finance and political economy. The foundation was laid by the great collection of the late Stephen Colwell, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, published before 1860. This has been supplemented by the bequest of the library of the late Henry C. Carey, which includes many later works and pamphlets, and is especially rich in statistical literature, European government reports, and the like. It embraces a collection of about three thousand English pamphlets, formerly Mr. McCalmont's, covering the period from the close of the seventeenth century to our own time, and bound in chronological order.

Original research by the students, under the direction of the professors, is a part of the work of the School.

COURSE OF STUDY.

The course of study extends through two years, and during the year 1887–8 embraces the following subjects:

JUNIOR CLASS.

FIRST TERM.

POLITICAL SCIENCE.—Theory of the State. Public Functions. (Lectures and Text-book.) [Prof. James. 3]

AMERICAN POLITICS.—First Term. *Colonial History.* Johnson's *History of the United States.* Preston's *Documents Illustrative of American History.* Preparation of Maps. Washington to Jackson. Johnston's *History of American Politics.* Gay's *Madison.* Morse's *John Quincy Adams.* Preparation of Boundary, Population, and Economic Maps. [Prof. McMaster. 3]

POLITICAL ECONOMY.—Thompson's *Elements of Political Economy.* [Prof's. Thompson and ——. 4]

ENGLISH LITERATURE.—Lectures. [Prof. Thompson. 2]

LOGIC.—Jevons's *Lessons in Logic.* Ethics. [Prof. Fullerton. 2]

PHYSICS.—Elementary Physics, Sound and Heat. Lectures. [Prof. Barker. 4]

INTERNATIONAL LAW.—Lectures. [Prof. Hare. 2] (Optional).

METHODS OF ACCOUNTING.—[Mr. Gilpin. 3]

Digitized by Google

SECOND TERM.

CIVIL GOVERNMENT.—Elements of the Constitutional and Administrative Law of the Federal and State Governments. (Lectures and Text-book). [Prof. James. 3]

AMERICAN POLITICS.—Jackson to date. (Sumner's *Jackson.*) Johnston's *American Politics.* Johnston's *Half Century of American History.* Lectures. [Prof. McMaster. 3]

POLITICAL ECONOMY.—Thompson completed. [Prof's. Thompson and ——. 4]

MORAL PHILOSOPHY.—Lotze's *Outlines of Psychology.* [Prof. Fullerton. 2]

PHYSICS.—Elementary Physics. Light and Electricity. [Prof. Barker. 4]

METHODS OF ACCOUNTING.—[Mr. Gilpin. 3]

SENIOR CLASS.

FIRST TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS.—Compositions and Lectures. [Prof. Thompson. 3]

AMERICAN CONSTITUTIONAL HISTORY.—First Period, 1789–1825. Lectures. (Von Holst's *Constitutional History of the United States.* Bancroft's *History of the Constitution.*) [Prof. McMaster. 4]

FINANCE.—Principles and Methods of Public Finance. Objects of Public Expenditure. Revenue from Public Property and Fees. (Lectures.) [Prof. James. 2]

CIVIL GOVERNMENT.—Principles of General Constitutional and Administrative Law. Principles and Comparative Methods of Legislation. Lectures. [Prof. James. 2]

PHILOSOPHY.—[3]

SECOND TERM.

EXPOSITION OF LEADING PRINCIPLES OF POLITICAL ECONOMY AND THEIR APPLICATIONS.—Composition and Lectures. (Continued.) [Prof. Thompson. 3]

AMERICAN CONSTITUTIONAL HISTORY.—Second Period, 1825–1885. (Lectures and Text-books.) [Prof. McMaster. 3]

FINANCE.—Principles and Methods of Public Finance. Theory and Practice of Taxation. Financial Administration. Local Finance. Lectures. [Prof. James. 2]

CIVIL GOVERNMENT.—Principles and Comparative Methods of Public Administration—general and local. Lectures. [Prof. James. 2]

PHILOSOPHY.—[3]

CONSTITUTIONAL LAW.—(Optional.)*

ROMAN LAW.—(Optional.)*

PREPARATION OF THESES.

*These courses are given in the Law School, but are open to Wharton School students.

Digitized by Google

The instruction in Political Economy during the Junior year is that which is usually given to the Junior and Senior classes in colleges. During the Senior year instruction in this branch is given through compositions and discussions by the class, followed by a review, exposition and application of principles by the professor.

Instruction in European Finance comprises the history, and a description and comparison of the financial systems of the principal countries of Europe. American Finance comprises a history of the national, state and municipal systems, and a comparison of them with foreign systems.

The subject of Legislation and Administration is treated comparatively, including the practice of all the principal European countries and our own, beside the varying practice of the several States of the Union.

During the first term, the course in American Politics covers the period from the formation of the Constitution to the close of Jackson's administration. This subject is studied with the aid of text-books and special works; and essays are required on collateral topics. The Senior year is devoted to the Constitutional History of the United States. Much of the work is done by students in libraries. A series of lectures is given on the more important Constitutional questions, and essays thereon are prepared by the students and read in the class-room.

SUPPLEMENTARY LECTURES.

Several lecturers not otherwise connected with the Faculty of the School have been engaged to treat special points relating to the regular subjects of instruction. The following lectures were delivered during the year 1886–7.

1. Twelve lectures on the "Constitutional Law of the United States," by Dr. F. N. Thorpe, Professor of History in the Manual Training High School of Philadelphia, and Fellow in Political Science of the University of Pennsylvania. Four of these lectures are devoted to a discussion of the "Fundamental Rights," two to the Legislative Departments, two to the Judiciary, two to the Executive, one to the Law of Administration, and one to the Historical Developments.

2. Two lectures on "Taxation in Pennsylvania," by James Collins Jones, Ph.B., Fellow in American History of the University of Pennsylvania.

3. Two lectures on "Legislative Procedure," by the Hon. Robert Adams, A.M., B.F., State Senator from Philadelphia, Graduate of the Wharton School.

4. Two lectures on "German Socialism," by William W. Carlile, Ph.B., Graduate of the Wharton School, recently a member of the Economic Seminaries at Halle and Berlin.

Digitized by Google

EXAMINATIONS FOR ADMISSION AND ADVANCED STANDING.

Students are admitted to full standing in the Wharton School as candidates for a degree, when they have completed the Freshman and Sophomore years of any American college, whose course is recognized as equivalent to that offered in the corresponding years of the College Department of this University. Students in the Department of Arts, the Towne Scientific School or the Course in Philosophy for Undergraduates, who enter the Wharton School Course at the beginning of Junior year, receive, at graduation, the Degree of A.B., B.S., or Ph.B., according to the course from which they have come. Students from other colleges are admitted on the same conditions. Baccalaureate Graduates in any course of colleges in good standing may enter the Senior Class without preliminary examination.

Any persons who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the School.

DEGREES.

The Degree of Bachelor of Philosophy (Ph.B.) is conferred (1) on students who complete satisfactorily the full course; (2) on graduates in Arts or in Science of the University of Pennsylvania or of any college of equal standing, who pursue satisfactorily the Senior year of this Course. But students who have taken the two first years in the Course in Arts or its equivalent receive the Degree of Bachelor of Arts (A.B.); those who have taken these years in the Course in Science receive the Degree of Bachelor of Science (B.S.)

For additional information, apply to the Secretary, Professor J. B. McMaster, University.

Digitized by Google

THE COURSE IN MUSIC.

The qualifications required to enter the department are, *first*, a knowledge of the rudiments of music, and, *second*, the ability to play on some instrument—preferably the piano or organ.

The course extends through three years. The year begins on the first Monday in October, and is divided into three terms of ten weeks each. The first year is devoted to Harmony; the second to Counterpoint and Composition; the third to Form and Instrumentation.

Persons of both sexes are admitted. The fees are ten dollars ($10) for each term, payable in advance.

A Certificate of Study is awarded to the student who has completed the full course, passed the required examination, and presented as a thesis a satisfactory original composition. It is intended to hold hereafter a Commencement of the Department of Music for the granting of Degrees and awarding of Certificates, and from the theses of the graduating class a certain number will be selected by the Professor to be performed on that occasion. Persons holding these Certificates may at any subsequent time proceed to the Degree of Bachelor of Music (Mus. Bac.) on the following conditions:—

1. They must be examined in Harmony, Counterpoint and Composition, by three examiners appointed by the Professor, subject to the approval of the Provost; the examination to be oral or written, or both, at the discretion of the examiners.

2. They must submit to the examiners an original composition in the form of a cantata for solos and chorus, with an accompaniment of at least a quintette of string-instruments.

3. This composition must be of such length as to require at least twenty minutes for its performance; it must contain a four-part fugue; and the accompaniment must be independent, except in the fugue.

4. The composition must be accompanied by a written statement that it is the student's own unaided effort.

For detailed information, apply to

Prof. H. A. Clarke, Mus. D., 223 S. 38th Street.

Digitized by Google

Digitized by Google

DEPARTMENT OF MEDICINE.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
HENRY H. SMITH, M.D., Emeritus Professor of *Surgery*.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the *Theory and Practice of Medicine*, and of *Clinical Medicine*.
HARRISON ALLEN, M.D., Emeritus Professor of *Physiology*.

FACULTY.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.
RICHARD A. F. PENROSE, M.D., LL.D., Professor of *Obstetrics* and *Diseases of Women and Children*.
D. HAYES AGNEW, M.D., LL.D., John Rhea Barton Professor of *Surgery*, and Professor of *Clinical Surgery*.
WILLIAM PEPPER, M.D., LL.D., Professor of *Theory* and *Practice of Medicine*, and of *Clinical Medicine*.
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology*.
JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy*.
HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica, Pharmacy, and General Therapeutics*.
THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry* and *Toxicology*.
JOHN ASHHURST, JR., M.D., Professor of *Clinical Surgery*.
WILLIAM OSLER, M.D., Professor of *Clinical Medicine*.
EDWARD T. REICHERT, M.D., Professor of *Physiology*.
WILLIAM F. NORRIS, M.D., Honorary Professor of *Ophthalmology*.

CLINICAL PROFESSORS.

WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye*.
GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear*.
HORATIO C. WOOD, M.D., LL.D., Clinical Professor of *Nervous Diseases*.
LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases*.
LOUIS STARR, M.D., Clinical Professor of *Diseases of Children*.
J. WILLIAM WHITE, Clinical Professor of *Genito-urinary Diseases*.

Digitized by Google

ASSISTANT PROFESSOR.

EDWARD T. BRUEN, M.D., Assistant Professor of *Physical Diagnosis.*

AUXILIARY PROFESSORS.

JOHN J. REESE, M.D., Professor of *Medical Jurisprudence*, including *Toxicology.*

SAMUEL G. DIXON, M.D., Professor of *Hygiene.*

LECTURERS AND DEMONSTRATORS.

ROLAND G. CURTIN, M.D., Lecturer on *Physical Diagnosis.*

CHARLES K. MILLS, M.D., Lecturer on *Mental Diseases.*

ADOLPH W. MILLER, M.D., Lecturer on *Materia Medica* and *Pharmacy*, and Instructor in *Practical Pharmacy.*

DE FOREST WILLARD, M.D., Lecturer on *Orthopædic Surgery.*

JOHN MARSHALL, M.D., NAT. SC. D., Demonstrator of *Practical Chemistry.*

J. WILLIAM WHITE, M.D., Demonstrator of *Surgery.*

GEORGE A. PIERSOL, M.D., Demonstrator of *Normal Histology.*

HENRY F. FORMAD, M.D., Demonstrator of *Morbid Anatomy* and *Pathological Histology*, Lecturer on *Experimental Pathology* and Librarian of the Stillé Medical Library.

HENRY R. WHARTON, M.D., Instructor in *Clinical Surgery*, Lecturer on *Surgical Diseases of Children.*

JOHN B. DEAVER, M.D., Demonstrator of *Anatomy*, and Lecturer on *Topographical Anatomy.*

RICHARD H. HARTE, M.D., Demonstrator of *Osteology.*

THOMAS R. NEILSON M.D.,
EDMUND W. HOLMES, M.D., } Assistant Demonstrators of *Anatomy.*

ALBERT L. A. TOBOLDT, M.D., Assistant Demonstrator of *Practical Pharmacy.*

WILLIAM A. EDWARDS, M.D.,
JUDSON DALAND, M.D., } Instructors in *Clinical Medicine.*

J. P. CROZER GRIFFITH, M.D., Assistant to the Professor of *Theory and Practice of Medicine.*

GEORGE E. DE SCHWEINITZ, M.D., Prosector to the Professor of *Anatomy.*

SAMUEL D. RISLEY, M.D., Instructor in *Ophthalmology.*

W. M. L. ZIEGLER, M.D., Instructor in *Otology.*

CARL SEILER, M.D., Instructor in *Laryngology.*

FRANCIS X. DERCUM, M.D., Instructor in *Nervous Diseases.*

J. HENDRIE LLOYD, M.D., Instructor in *Electro-Therapeutics.*

A. SYDNEY ROBERTS, M.D., Instructor in *Orthopædic Surgery.*

Digitized by Google

HENRY W. STELWAGON, M.D., Instructor in *Dermatology.*

HOBART A. HARE, M.D., Demonstrator of *Experimental Therapeutics* and Instructor in *Physical Diagnosis.*

THOMAS R. NEILSON, M.D., Instructor in *Genito-Urinary Diseases.*

WILLIAM L. TAYLOR, M.D., Instructor in *Clinical Gynæcology.*

GWILLYM G. DAVIS, M.D., Assistant Demonstrator of *Surgery.*

EDWARD MARTIN, M.D., Instructor in *Operative Surgery,* Assistant Demonstrator of *Surgery,* Lecturer on *Minor Surgery.*

JOHN K. MITCHELL, M.D., Instructor in *Clinical Medicine.*

W. FRANK HAEHNLEN, M.D., Assistant Demonstrator of *Normal Histology.*

GEORGE H. CHAMBERS, M.D., Assistant Demonstrator of *Normal Histology.*

JAMES K. YOUNG, M.D., Assistant Demonstrator of Surgery.

DAVID D. RICHARDSON, M.D., Assistant Demonstrator of *Anatomy.*

BARTON COOK HIRST, M.D., Lecturer on *Clinical* and *Operative Obstetrics,* and Demonstrator of *Operative Obstetrics.*

JOHN H. MUSSER, M.D., Instructor in *Clinical Medicine.*

JOHN B. ROBERTS, M.D., Assistant Demonstrator of *Anatomy.*

HENRY W. CATTELL, M.D., Assistant Demonstrator of *Chemistry.*

ALLEN J. SMITH, M.D., Acting Assistant Demonstrator of *Morbid Anatomy* and *Pathological Histology.*

ROBERT FORMAD, Acting Assistant Demonstrator of *Normal Histology.*

ARTHUR A. STEVENS, M.D.,
T. PASSMORE BERENS, M.D., } Instructors in *Physical Diagnosis.*

The following Students, selected on account of their proficiency in Chemistry, act as Assistants in the Chemical Laboratory:—

Howard S. Anders . . . . . Phila. Central High School.
W. M. Carothers . . . . . Wooster University.
J. M. Fordham . . . . . Wyoming Seminary.
A. B. Gilliland . . . . . Cornell University.
Rowland Haines . . . . . Swarthmore College.
Wallace R. Hunter . . . . . Penna. State College.
Robert M. Kennedy . . . . . U. S. Naval Academy.
Junzo Kawamoto . . . . . Oberlin University.
W. K. Maglaughlin, ... Dickinson College.
Thomas G. McConkey . . . . . Wittenberg College.
Oscar W. Richards . . . . . Lafayette College.
Edgar Strayer . . . . . West Chester Normal School.
A. L. Smith . . . . . Rochester University.
Arthur P. Summers . . . . . Yale College.

Digitized by Google

Jacob D. Updegrove . . . . . Lafayette College.
E. L. Walmer . . . . . Millersville Normal School.

The following Graduates of the School conduct the admission examinations in the several cities in which they reside:—

Dr. C. H. Mastin, 110 St. Francis Street, Mobile, Ala.
Dr. Jos. M. Towler, 6 N. Main Street, Columbia, Tenn.
Dr. Eugene A. Grissom, North Carolina Insane Asylum, Raleigh, N. C.
Dr. C. D. Fishburn, 70 McMicken Avenue, Cincinnati, Ohio.
Dr. E. C. Bullard, 185 Harrison Avenue, Boston, Mass.
Dr. C. Gilman Smith, 2220 Calumet Avenue, Chicago, Ill.
Dr. C. H. Boardman, 503 Wabasha Street, St. Paul, Minn.
Dr. W. Fitz Hugh Edwards, 205 Fort Street, Detroit, Mich.
Dr. W. S. Elkin, 70½ Whitehall Street, Atlanta, Ga.
Dr. J. W. Whitbeck, 125 East Avenue, Rochester, N. Y.
Dr. W. T. Bell, City and County Hospital, San Francisco, Cal.
Dr. W. D. Hamaker, Meadville, Penna.
Dr. Edward Randall, Jr., Galveston, Texas.

HOSPITAL STAFF.

WILLIAM PEPPER, M.D., LL.D., Professor of *Clinical Medicine.*
D. HAYES AGNEW, M.D., LL.D., Professor of *Clinical Surgery.*
WILLIAM GOODELL, M.D., Professor of *Clinical Gynæcology.*
JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy.*
JOHN ASHHURST, Jr., M.D., Professor of *Clinical Surgery.*
WILLIAM OSLER, M.D., Professor of *Clinical Medicine.*
WILLIAM F. NORRIS, M.D., Clinical Professor of *Diseases of the Eye.*
GEORGE STRAWBRIDGE, M.D., Clinical Professor of *Diseases of the Ear.*
HORATIO C. WOOD, M.D., LL.D., Clinical Professor of *Nervous Diseases.*
LOUIS A. DUHRING, M.D., Clinical Professor of *Skin Diseases.*
LOUIS STARR, M.D., Clinical Professor of *Diseases of Children.*
J. WILLIAM WHITE, M.D., Clinical Professor of *Genito-Urinary Diseases.*

ROLAND G. CURTIN, M.D.,
EDWARD T. BRUEN, M.D.,
J. P. C. CROZER GRIFFITH, M.D.,
JOHN K. MITCHELL, M.D.,
} Assistant Physicians.

J. WM. WHITE, M.D.,
H. R. WHARTON, M.D.,
RICHARD H. HARTE, M.D.,
} Assistant Surgeons.

Digitized by Google

SAMUEL D. RISLEY, M.D., Assistant *Ophthalmic Surgeon.*
WALTER M. L. ZIEGLER, M.D., Assistant *Aural Surgeon.*
HENRY W. STELWAGON, M.D., Assistant *Dermatologist.*
FRANCIS H. DERCUM, M.D., Assistant *Neurologist.*
CHARLOTTE M. HUGO, Superintendent of the Hospital.
WILLIAM E. HUGHES, M.D., Medical Registrar.
JAMES K. YOUNG, M.D., Surgical Registrar.
HENRY F. FORMAD, M.D., Pathologist.
JUDSON DALAND, M.D., Curator.
W. M. POWELL, M.D., Surgical Anæsthetizer.
HARVEY SHOEMAKER, M.D.,
T. S. WESTCOTT, M.D.,
LEONIDAS L. MIAL, M.D.,
JOSEPH LEIDY, JR., M.D.,
ELLWOOD R. KIRBY, M.D.,
} Resident Physicians.
C. B. KIRBY, Ph.G., Apothecary.

DISPENSARY SERVICE.

SAMUEL D. RISLEY, M.D., Surgeon in the Dispensary for *Diseases of the Eye.*
WALTER M. L. ZIEGLER, M.D., Surgeon in the Dispensary for *Diseases of the Ear.*
WILLIAM L. TAYLOR, M.D., Surgeon in the Dispensary for *Diseases of Women.*
DE FOREST WILLARD, M.D.,
A. SYDNEY ROBERTS, M.D.,
} Attending Surgeons in the Orthopædic Dispensary.
JOHN H. MUSSER, M.D., Physician in the *Medical* Dispensary.
CARL SEILER, M.D., Physician in the Dispensary for *Diseases of the Throat.*
FRANCIS X. DERCUM, M.D., Physician in the Dispensary for *Nervous Diseases.*
H. W. STELWAGON, M.D., Physician in the Dispensary for *Diseases of the Skin.*
M. HOWARD FUSSELL, M.D., Assistant Physician in the *Medical* Dispensary.
RICHARD H. HARTE, M.D.,
CHARLES W. DULLES, M.D.,
JOSEPH M. FOX, M.D.,
JOHN B. DEAVER, M.D.,
} Attending Surgeons in the *Surgical* Dispensary.
JAMES WALLACE, M.D.,
G. E. DE SCHWEINITZ, M.D.,
} Assistant Surgeons in the Dispensary for *Diseases of the Eye.*
JAMES HENDRIE LLOYD, M.D., Assistant Physician in the Dispensary for *Nervous Diseases.*
THOMAS R. NEILSON, M.D., Surgeon in the Dispensary for *Genito-Urinary Diseases.*

Digitized by Google

JOHN SHEETS, M.D., Assistant Physician in the Dispensary for *Diseases of the Throat.*

HOBART A. HARE, M.D., Attending Physician in the Dispensary for *Diseases of Children.*

FREDERIC H. MILLIKEN, M.D.,
JAMES K. YOUNG, M.D., } Assistant Surgeons in the *Orthopædic* Dispensary.

WILLIAM R. HOCH, M.D., Assistant Surgeon in the Dispensary for *Diseases of the Ear.*

J. HOWARD REEVES, M.D., Assistant Physician in the Dispensary for *Diseases of the Throat.*

EDWIN C. BAILEY, M.D.,
W. CONSTANTINE GOODELL, M.D.,
W. A. CAREY, M.D., } Assistant Surgeons in the Dispensary for *Diseases of Women.*

H. M. CHRISTIAN, M.D., Assistant Surgeon in the Dispensary for *Genito-Urinary Diseases.*

B. ALEXANDER RANDALL, M.D.,
G. ORAM RING, M.D., } Assistant Surgeons in the Dispensary for *Diseases of the Eye.*

SPENCER TROTTER, M.D., Assistant Physician in the Dispensary for *Diseases of the Throat.*

WILLIAM M. POWELL, M.D.,
CHARLES CLAXTON, M.D., } Assistant Physicians in the Dispensary for *Diseases of Children.*

WM. E. HUGHES, M.D.,
M. HOWARD FUSSELL, M.D.,
GEORGE DOCK, M.D., } Assistant Physicians in the *Medical* Dispensary.

All communications should be addressed to

JAMES TYSON, M.D.,
Secretary of the Faculty of Medicine, University of Penna.,
Philadelphia, Penna.

☞ The Secretary's office is in Medical Hall, where all business is transacted.

Digitized by Google

MATRICULATES.

Fourth Year.

Clewell, Cary K., M.D.,	Telford,	University of Penna.
Moyer, Irwin J., M.D.,	Pittsburgh,	Western Res. Univ.
Slocum, Charles E., Jr., M.D.,	El Paso, Ill.,	College Physicians & Surgeons, N. Y.

Students of the Fourth Year, 3.

Third Year.

Adler, Lewis H., Jr.,	Philadelphia,	L. H. Adler.
Agnew, Hulbert, A.M. (Princeton),	Philadelphia,	D. Hayes Agnew.
Alleman, Horace M., A.B. (Lafayette),	Hanover,	H. Alleman.
Andrews, Warren W., B.S. (Dickinson Seminary),	Lock Haven,	E. G. Walls.
Atwater, Edward P.,	Sydney, Aus.,	Kingsbury & Breneman.
Baker, James H., A.B. (Hamilton College),	Clinton, N. Y.,	University.
Barberena, Narciso, B.S.,	Granada, Nicaragua,	University.
Blake, Lewis J., A.B. (Wofford College, S. C.),	Spartanburg, S. C.,	Geo. W. Heinitsh.
Bolton, Samuel, Jr., A.B. (Bucknell),	Philadelphia,	University.
Bonnaffon, Samuel Ashton, M.D.,	Philadelphia,	Jefferson Med. Coll.
Bowman, John H., B.S. (Dickinson Seminary),	Hazleton,	W. R. Longshore.
Bulette, Wilbur W.,	Constitution,	T. M. & J. M. Curran.
Burger, Francis J.,	Lancaster,	A. J. Burger.
Bushong, John W.,	Philadelphia,	University.
Canfield, William C.,	Bristol, R. I.,	Herman Canfield.
Cates, Benjamin B.,	Marysville, Tenn.,	J. W. Cates.
Cawley, Morris Franklin,	Allentown,	J. I. Cawley.
Chamorro, Filadelfo,	Grenada, Nic.,	University.
Coldren, William A.,	Van Wert,	A. J. Fisher.
Colter, Frederick G.,	Woodstock, N. B.,	N. R. Colter.
Cooke, Edwin S., A.B. (C.H.S.),	Philadelphia,	University.
Diefenderfer, Walter B., M.E.,	Auburn,	J. T. & J. S. Carpenter.
Dongion, Giragos,	Dearbecker, Armenia,	Judson Daland.
Downes, Randolph H., Ph.G.,	Templesville, Md.,	University.
Downs, Norton,	Germantown,	R. N. Downs.
Easter, Daniel M.,	Baltimore, Md.,	University.
Eckman, Philip N.,	Scranton,	University.
Egbert, Seneca, A.M. (Princeton),	Franklin,	S. Bredin.
Faries, Randolph, A.B. (Univ. of Penna.),	Philadelphia,	J. Wm. White.
Ferrer, Adolfo Leon, A.B. (Ocampo, Mex.),	Tabasco, Mex.,	University.

Digitized by Google

Foltz, J. Clinton, A.B. (Princeton),	Lancaster,	W. S. W. Ruschenberger.
Frame, Joseph K.,	Millsboro', Del.,	H. G. M. Kollock.
Frey, Lewis,	Scranton,	R. H. Gibbons.
Friend, Samuel H.,	Milwaukee, Wis.,	H. M. Brown.
Gentry, Alan F., A.B. (Central High School),	Philadelphia,	University.
Gillam, William S.,	Langhorne,	Samuel G. Dixon.
Gill, Walter Myers,	Allegheny,	B. Kerr.
Goodwin, Eugene B.,	Kenton, Del.,	W. W. Keen & J. A. Goodwin.
Greenewalt, Frank L.,	Chambersburg,	S. G. Lane & C. F. Palmer.
Greene, Walton S.,	Aberdeen, Miss.,	J. M. Greene.
Green, John Traill, A.B. (Lafayette),	Easton,	Traill Green and E. M. Green.
Griesemer, Howard,	Reading,	W. Murray Weidman.
Guerrero, José B.,	Managua, Nicarag.,	University.
Gummey, Frank Bird,	Germantown,	Rich. H. Harte.
Hall, George Benjamin,	Renovo,	Wm. E. Hall.
Hall, Harry N., Ph.G.,	Aguascalientes, Mex.	H. S. Squires.
Hamill, Samuel M.,	Lemont,	R. H. Hamill.
Hand, William Nelson,	Woodstock, N. B.,	C. P. Connell.
Harding, Frank H.,	Mansfield, Ohio,	R. Harvey Reed.
Hatch, John Leffingwell,	Rochester, N. Y.,	Jos. A. Biegler and Judson Daland.
Hay, Charles McKenzie,	Woodstock, N. B.,	M. F. Bruce.
Hayes, Joseph,	Spring Hill Mines, N. S.,	J. W. Cove.
Hepler, Harry A.,	Reading,	Howard S. Reeser.
Heyl, Ashton Bryant,	Philadelphia,	Theo. C. Heyl.
Hotchkiss, Walter William,	Meadville,	Jno. C. Cotton.
Huber, William S.,	Lebanon,	Wm. M. Guilford.
Humphrey, Glennis E.,	Union City,	O. L. Abbey and A. C. Sherwood.
Hunter, James, Jr., Ph.G.,	Philadelphia,	University.
Johnson, Elmer, E., A.B. (Muhlenberg),	Norristown,	B. K. Johnson and Judson Daland.
Jones, Charles J.,	Philadelphia,	J. Wm. White.
Kahn, Joseph,	Milwaukee, Wisc.,	University.
Kalbach, A. Frank, A.B. (Franklin & Marshall),	Philadelphia,	S. B. McDowell.
Kelly, John J.,	Parsons,	University.
Kerns, Alvin J., B.S. (Ursinus),	Slatington,	L. E. Taubel.
Klapp, Wilbur P.,	Philadelphia,	University.
Knoll, John G. W.,	Buffalo, N. Y.,	A. G. Gumaer.
Lake, Wilson A.,	Green Creek, N. J.,	J. H. Ingram.
Landis, Eli Barr,	Lancaster,	S. T. & M. L. Davis.
Le Conte, Robert G., A.B. (Univ. of Penna.),	Philadelphia,	W. W. Keen.
Lenahan, Frank P.,	Wilkes-Barre,	C. W. Spayd.
Lincoln, William R.,	Philadelphia,	Allen J. Smith.

Digitized by Google

Long, Frederick F.,	Pittsfield, Ill.,	University.
Mackey, David,	Lewisville,	J. G. West.
Mallet-Prevost, Washington,	Zacatecas, Mex.,	R. H. Hamill and G. Mallet-Prevost.
Manship, Sheridan P.,	Milton, Del.,	Millard F. Corkran.
Mathews, George S., A. B. (Brown),	Temple,	A. Mathews.
Miller, Edwin H.,	Camden, N. J.,	University.
Miller, Milo G., A.M. (Western Univ.),	Pittsburgh,	Jno. M. Duff.
Mitchell, Andrew J., A.B. (Allegheny),	Fredonia,	M. M. Magoffin.
Myers, Oscar M., Ph.G.,	Rochester, N. Y.,	Chas. E. Darrow.
McFarland, Joseph,	Philadelphia,	George H. Horn.
McMillan, James H., A.B. (Washington University),	St. Louis, Mo.,	University.
Nixon, John Howard,	Wilmington, Del.,	R. J. McKay.
O'Brien, Harry J.,	St. Paul, Minn.,	C. E. Smith & E. J. Abbott.
Paris, Louis J.,	Philadelphia,	University.
Pennock, Walter I.,	Oxford,	University.
Pfoutz, Gilbert B.,	Philadelphia,	James Tyson.
Perry, Charles F.,	Norristown,	J. Wm. White.
Peter, Nathaniel C.,	Siegfried's Bridge,	C. W. Sieger.
Pierce, William Chandler,	Wilmington, Del.,	University.
Rabe, J. William,	Cleveland, Ohio,	B. A. Rabe.
Randolph, Philip J. S.,	Philadelphia,	University.
Ray, Frank W., A.B. (Union Coll.),	Columbia, S. C.,	P. E. Griffin.
Rea, William F.,	Philadelphia,	Thos. G. Morton.
Riley, Gustavus T.,	Washington, D. C.,	G. P. Fenwick.
Roberts, John B., A.M., M.D.,	Philadelphia,	Jeff. Med. College.
Rodgers, Robert, Jr.,	Philadelphia,	J. Howard Evans.
Ross, Thomas Haven,	Chestnut Hill,	James K. Young.
Roth, Emil,	Philadelphia,	John Strobel.
Rothrock, John L., A.B. (Penna. College),	Mifflintown,	University.
Saiki, Riichiro, M.D.,	Tokio, Japan,	University.
Saladé, Louis Audenried, A.B. (Franklin and Marshall),	Tamaqua,	R. N. Ramsey.
Schantz, William S.,	Hosensack,	H. Bobb,
Schoch, Lester E.,	Philadelphia,	W. R. Hughes.
Schoch, Will E.,	Easton,	C. H. Graff.
Seibert, Albert A.,	Pottsville,	A. H. & G. H. Halberstadt.
Sharples, Caspar Wistar, A.M. (Oregon University),	Eugene City, Ore.,	A. Sharples.
Sharpless, William T.,	West Chester,	Isaac Massey.
Shick, William F.,	Easton,	University.
Shissler, Alfred G.,	Shamokin,	University.
Shurtleff, Harry C.,	Philadelphia,	Augustine Shurtleff.
Silva, Manuel C. Da,	Rio de Janeiro, Braz.,	University.
Stavely, A. Livingston, A.B. (Princeton),	Lahaska,	W. R. Stavely.

Digitized by Google

Stevens, John C., B.S. (Dickinson),	Duncannon,	T. L. Johnston.
Steltz, P. Harry,	Allentown,	J. D. Christman.
Stiles, William E.,	Pittston,	J. J. Walsh.
Sweringen, Budd V.,	Fort Wayne, Ind.,	H. Von Sweringen.
Taillacq, Ricardo,	Cienfuegos, Cuba,	Wm. E. Hughes.
Tam, John L.,	Georgetown, Del.,	University.
Taylor, Harry B., Ph.G.,	Philadelphia,	Wm. T. Taylor.
Thomas, Thomas Brook,	Wilkes-Barre,	W. G. Weaver.
Thompson, Jesse B.,	Hurffville, N. J.,	University.
Vanneman, William S.,	Salem, N. J.,	Mayhew Johnson.
Voorhees, Shepard,	Daggetts Mills,	Chas. Voorhees.
Walter, Charles, A.B. (Central High School),	Philadelphia,	James Collins.
Waterhouse, Chas. F., A.B.,	Cincinnati, Ohio,	J. P. Waterhouse.
Webster, Charles F.,	Philadelphia,	University.
Whaley, Benton Harris,	Whaleyville, Md.,	S. P. Dennis.
Whitehead, John,	Trenton, N. J.,	University.
Wilbur, William L., A.B. (Princeton),	Hightstown, N. J.,	Lloyd Wilbur.
Winston, David Y.,	Auburn, Ky.,	University.
Wood, Alfred C., Ph.G.,	Hatboro',	University.
Yard, John S.,	Trenton, N. J.,	T. H. Mackenzie.
Yeager, Frank N.,	Berrysburg,	E. L. Yeager.
Zayas, Fernando A. de, A.B.,	Matanzas, Cuba,	Judson Daland.
Zimmerman, Mason W., Ph.G.,	Philadelphia,	University.

Students of the Third Year, 136.

SECOND YEAR.

Adams, J. Howe,	Philadelphia,	D. Hayes Agnew.
Alrich, William M.,	Philadelphia,	H. W. Rihl.
Anderson, Willis S.,	Shelby, Ohio,	Bricker & Huss.
Applebach, Harry E.,	Sellersville,	N. Applebach.
Bacon, John,	Greenwich, N. J.,	H. C. Wood.
Baker, Nathan M., B.S. (Univ. Minn.),	St. Peter, Minn.,	Chas. N. Hewitt.
Bashore, Harvey B., A.B. (Yale),	West Fairview,	D. W. Bashore.
Boger, John A., A.B. (C.H.S.),	Philadelphia,	D. Hayes Agnew.
Bolling, Robert H.,	Chestnut Hill,	Robt. Bolling.
Boyd, John M., Jr.,	Knoxville, Tenn.,	Jno. M. Boyd.
Brooke, Benjamin,	FortressMonroe, Va.,	J. Brooke.
Brown, James G.,	Peola Mills, Va.,	O. R. Quaintance.
Bryan, J. Roberts, A.B. (C.H.S.),	Philadelphia,	University.
Burd, William J.,	Belvidere, N. J.,	J. Marshall Paul.
Butcher, Alexander C.,	Philadelphia,	B. F. Butcher and H. F. Formad.
Butler, Clarence A., A.B.(W.U.P.),	Allegheny,	University.
Canby, Edmund,	Wilmington, Del.,	D. W. Maul.
Carpenter, Herbert B.,	Philadelphia,	University.
Carpenter, John T., Jr.,	Pottsville,	J.T.& J.S.Carpenter.
Cashman, Nathaniel A., Ph.G.,	Philadelphia,	Louis Starr.
Clarke, James F., B.S. (Iowa State Univ.),	Fairfield, Iowa,	University.
Clark, Robert,	Philadelphia,	Alex. Elwell.

Digitized by Google

Cleveland, Arthur H., B.S. (Lafayette),	Philadelphia,	University.
Cressman, George S.,	Lafayette Hill,	B. R. Peltz.
Cross, George D.,	Chester,	R. H. Milner.
Crothers, S. Ross, Ph.G.,	Zion, Md.,	University.
Curry, Edw. A., A.B. (Dickinson),	Danville,	J. D. Strawbridge.
Davis, Charles N.,	Bryn Mawr,	University.
Davis, William J.,	Pottstown,	J. Davis & B. B Wilson.
Deekens, Arthur H.,	Federalsburgh, Md.,	University.
Dimm, Charles H.,	Selins Grove,	P. A. Boyer.
Duer, S. Naudain, A.B. (University Penna.)	Philadelphia,	Edw. L. Duer.
Dunn, Walter, Ph.G.,	Clifton Heights,	J. S. Pearson:
East, Frederick, A.B. (Rochester),	Brockport, N. Y.,	Rich. M. Moore.
England, Joseph W., Ph.G.,	Philadelphia,	E. P. Bernardy.
Ferguson, Albert D.,	Philadelphia,	J. F. Holt.
Fowler, Charles C., A B. (Emory Coll.),	Spartanburg, S. C.,	University.
Fox, Horace,	Philadelphia,	Wm. Osler.
Frasse, Irvin N.,	Brooklyn, N. Y.,	Geo. G. Hopkins.
French, Edward M.,	Bethlehem,	University.
Galbraith, James L., A.B. (C.H.S.),	Philadelphia,	A. G. Reed.
Gallagher, George W.,	Dawson,	Hobart A. Hare.
Gallaher, Thomas J., Jr.,	Pittsburgh,	Thos. J. Gallaher.
Galloway, Albert B., A.B. (C.H.S.),	Philadelphia,	University.
Geissenger, Henry G.,	Philadelphia.	R. W. Griffith.
Gerlach, E. Rudolph,	Trenton, N. J.,	University.
Gillespie, Frank,	Principio, Md.,	R. R. Crothers.
Grebe, William, Ph.G.,	Philadelphia,	J. A. McAuley.
Greene, William C., A.B.,	Beaufort, S. C.,	F. X. Dercum.
Hall, William D. W., A.B. (Princeton),	Lewes, Del.,	David Hall.
Hamme, John M., B.S. (Lafayette),	York,	Jacob Hay.
Harris, Thomas J., A.B. (Dartmouth),	Claremont, N. H.,	University.
Heil, Ulysses S. Grant,	Easton,	M. T. Prendergast.
Hileman, John S.,	Pittston,	G. W. Underwood.
Horning, Frank L.,	Landingville,	D. Dechert.
Howerter, Emanuel L., B.E.,	Stony Run,	University.
Hull, Waldo W.,	Williamsport,	W. R. Hull.
Hunsberger, J. Newton,	Skippack,	Sam'l Wolfe.
Johnson, Albert T. W.,	Nassau, W. I.,	T. W. Johnson.
Johnston, William G.,	Titusville,	University.
Keefer, Frank R., Ph.B. (Dickinson),	Sprague, Wash. Ter.,	Calvin DeWitt.
Keiser, Elmer E., A.B. (Bucknell Univ.),	Lewisburg,	John B. Deaver.
Kneass, Samuel S., A.B. (Univ. Penna.),	Philadelphia,	University.
Kulp, John Stewart,	Wilkes-Barre,	J. A. Murphy.

Digitized by Google

Lakin, Harry P.,	Wheeling, W. Va.,	Samuel L. Jepson.
La Motte, Harry,	Fort Wingate, N.M.,	University.
Lear, John, A.M. (Lafayette),	Allentown,	John Sandt.
Lederman, Moses D.,	Lancaster,	M. L. Herr.
Leonard, Charles L., A.B. (Univ. of Penna. and Harvard),	Philadelphia,	University.
Lightfoot, Sidley Ievers,	Limerick, Ireland,	C. B. Gaffney.
Linderman, Herbert,	Quakertown,	R. J. Linderman.
Longshore, James B.,	Philadelphia,	G. D. O'Farrell.
Mallon, James P., Ph.G.,	Philadelphia,	J. P. Strotmatter.
Massinger, Charles Jerome,	Chalfont,	I. S. Moyer.
Mercer, Charles P., Ph.B. (Univ. of Penna.),	Philadelphia,	S. T. Neuber.
Michel, Bernard, Ph.G.,	Dubuque, Iowa,	Jno. B. Deaver.
Miles, Thomas J.,	Sac & Fox Agency, Ind. Ter.,	University.
Miller, Charles L.,	Lebanon,	S. Weiss, Jr.
Miller, Horace W.,	Urbana, Ill.,	J. T. Miller.
Miller, Morris Booth,	Media,	Chas. J. Essig.
Milnor, William S., A.B. (C.H.S.),	Philadelphia,	University.
Moore, Cyrus Chester,	Moore's Salt Works, Ohio,	Wm. W. Jones.
Moore, J. Demuth, Ph.G.,	Wrightsville,	University.
Motter, Murray G., A.B., B.S. (Penna. Coll.),	Washington, D. C.,	J. B. Scott.
McClure, John T.,	Philadelphia,	University.
McConnell, James W.,	Manayunk,	C. K. Mills.
McCormick, Louis P.,	Connellsville,	University.
McGalliard, Benjamin W., Ph.B. (Lafayette),	Bridgeton, N. J.,	University.
McGill, Will. B.,	Marionville, Mo.,	University.
McKelway, George I., Ph.G.,	Philadelphia,	D. Hayes Agnew.
McNaugher, Samuel N., A.B. (Westminster),	Allegheny,	University.
Naylor, Walter W.,	New Hope,	G. L. Romine.
Neuber, George G. E., A.B. (Univ. of Penna.),	Philadelphia,	S. T. Neuber.
Nicholson, George M.,	Jersey City, N. J.,	A. A. Latkins.
O'Brien, Christopher, Ph.G.,	Conshohocken,	University.
O'Hara, Michael, Jr.,	Philadelphia,	M. O'Hara.
Paff, Edwin H.,	Allentown,	W. S. Berlin.
Patrick, William S.,	Quinton, N. J.,	T. J. Smith.
Phillips, Horace,	Philadelphia,	University.
Pickerell, Evan,	Minerva, Ky.,	J. A. Reed.
Posey, William C., A.B. (Univ. of Penna.),	Philadelphia,	University.
Price, William H., A.B. (C.H.S.),	Philadelphia,	R. J. Levis.
Rawlins, Benjamin L.,	Dallas, Texas,	S. D. Thruston.
Reagan, Arthur D., Ph.G.,	Easton,	University.
Reisert, William, Ph.G.,	Bridesburg,	University.
Rhodes, Oreon S.,	E. Stroudsburg,	T. C. Walton.
Roach, Walter W., A.B. (C.H.S.),	Philadelphia,	Horace Ladd.

Digitized by Google

Rosenau, Milton J., A.B. (C.H.S.),	Philadelphia,	University.
Rote, John P., A.B. (K.S.U.),	San Antonio, Texas,	University.
Rothermel, Pius,	Molltown,	University.
Rottner, Charles S., Ph.G.,	Philadelphia,	University.
Ruiz, Jesus,	Guayata, U. S. Col.,	University.
Schaeffer, Charles D., A.B. (F. & M. Coll.),	Kutztown,	A. L. C. Hottenstein.
Schneider, Louis T.,	Philadelphia,	Geo. A. Bodamer.
Schroeder, Charles B., A.B. (Lafayette),	Lock Haven,	University.
Scott, Charles G.,	Roarkee, India,	University.
Scott, J. Allison, A.B. (Univ. of Penna.),	Philadelphia,	W. D. Green.
Sharp, J. Riddle,	Harrington, Del.,	Jno. A. Klump.
Sinnamon, George,	Philadelphia,	D. O'Callaghan.
Smith, Franklin A., Jr.,	Philadelphia,	University.
Small, J. Frank,	York,	I. C. Gable.
Smith, Rolla L.,	Oakville,	I. Betz.
Snyder, Elmer R.,	Hilltown,	E. T. Johnson.
Speers, Albert C.,	Belle Vernon,	University.
Spellissy, Joseph M., A.B. (Georgetown University),	Philadelphia,	University.
Stengel, Alfred,	Pittsburgh,	Walter Stengel.
Stichter, Henry Deischer, Ph.G.,	East Greenville,	H. Bobb.
Stitt, Edward R., A.B., Ph.G.,	Rock Hill, S. C.,	T. M. DuBose.
Striegel, Charles A.,	Shenandoah,	University.
Swaving, J. Harry,	Pottsville,	J. T. Carpenter and J. C. Swaving.
Swift, Elisha P., A.B. (Lafayette),	Allegheny,	University.
Toulmin, Harry, Ph.B. (Lehigh),	Philadelphia,	University.
Trexler, Jacob F.,	Mertztown,	P. W. Wertz.
Tyson, T. Mellor,	Philadelphia,	James Tyson.
Tunis, Joseph P., A.B. (Univ. of Penna.),	Philadelphia,	Louis Starr.
Umsted, William M.,	Coatesville,	Wm. R. Blakeslee.
Van Buskirk, Frederic W.,	Pottstown,	Henry Beates, Jr.
Vanmeter, Seymour D.,	San Antonio, Texas,	Judson Daland.
Weiss, George L.,	Lebanon,	S. Weiss, Jr.
Weiszgerber, John, Ph.B. (Univ. of Penna.),	Philadelphia,	University.
White, Abraham E., A.B. (Lincoln University),	Clinton, Miss.,	N. F. Mossell.
Williams, Charles B., A.B. (Univ. of Penna.),	Philadelphia,	R. J. Levis.
Wilson, E. Ellsworth, Ph.G.,	Philadelphia,	Geo. G. Pascoe, Jr.
Wilson, George B.,	Kittery, Me.,	C. J. Cleborne, U.S.N.
Wilson, Henry Delano,	Washington, D.C.,	J. B. Deaver.
Wilson, Richard,	Philadelphia,	University.
Wilson, Samuel M., B.A. (C.H.S.),	Philadelphia,	Jas. F. Wilson.
Wolf, Charles N.,	Hellam,	J. A. Armstrong.
Woodland, George Y.,	Norristown,	J. Wm. White.
Zuniga, Francisco J., A.B.,	Masaya, Nicaragua,	University.

Students of the second year, 150.

Digitized by Google

FIRST YEAR.

Anders, Howard S., B.A. (C.H.S.),	Philadelphia,	Jas. M. Anders.
Anders, Wesley A.,	North Wales,	H. F. Slifer.
Anderson, Thomas B.,	Washington, D. C.,	University.
Ashhurst, William W.,	Philadelphia,	John Ashhurst.
Backenstoe, Martin J.,	Emaus,	A. J. Martin.
Barnes, Harry D.,	Woodlawn, Md.,	J. T. Brown.
Bennett, James C., Jr.,	Cape May City, N.J.,	University.
Blackburn, James P.,	Jacob's Creek,	Lewis Sutton.
Bohlen, Robert M.,	Philadelphia,	University.
Bowman, Henry C.,	Schuylkill Haven,	C. Leuker.
Bowser, Alexander J.,	Schellsburg,	F. M. Marbourg.
Boyer, Samuel H.,	Titusville,	F. E. Luke.
Brimhall, John B.,	St. Paul, Minn.,	University.
Bromley, John L.,	Philadelphia,	A. K. Minich.
Bryant, Ernest A.,	St. Paul, Minn.,	University.
Carothers, William M., A.B.,	Turtle Creek,	H. N. Mateer.
Carter, William S.,	Easton,	Isaac Ott.
Cavanagh, John C.,	Parkesburgh,	W. R. Blakeslee.
Chidsey, Russell Williams,	Easton,	J. S. Hunt.
Clark, Henry H.,	Woodbury, N. J.,	H. C. Clark.
Clegg, William H., A.B. (C.H.S.),	Philadelphia,	University.
Cochran, Joseph D.,	Folly Mills, Va.,	University.
Corbus, Howard S., B.A.,	Beaver Falls,	D. McKinny, Jr.
Crankshaw, Charles W.,	Conshohocken,	Beaver & Highly.
Cummins, Robert H.,	Wheeling, W. Va.,	L. D. Wilson.
Dager, Howard A.B. (C.H.S.),	Manayunk,	A. H. Mellesh.
Daly, Harry C.,	Gibsonton,	University.
Dickson, Thomas G.,	Troy, N. Y.,	John B. Harvie.
Doan, Henry H.,	Philadelphia,	University.
Donahay, De Witt S.,	Howell, N. J.,	Wm. M. Hepburn.
Donges, Clarence B.,	Camden, N. J.,	J. W. Donges.
Dunn, Ira J., A.B. (Allegheny),	West Chester,	T. D. Dunn.
Eagleton, S. Potts,	Philadelphia,	Jas. M. Eagleton.
Evans, Frederick H.,	Chester,	F. J. Evans.
Evans, William K.,	Chester,	Wm. G. Knowles.
Evins, Thomas E.,	Spartansburg, S. C.,	Means & Moore.
Farish, James C.,	Liverpool, N. Scotia,	H. G. Farish.
Frishmuth, John P., A.B. (C.H.S.),	Philadelphia	University.
Gazzam, Edwin D.,	Carrollton, Md.,	University.
Geist, James W., M.E.,	Bechtelsville,	University.
Gilliland, A. Bertram, Ph.B. (Cornell),	Van Wert, Ohio,	University.
Graham, Wm. F., A.B. (Princeton),	Philadelphia,	University.
Griffith, Robert Constantine,	Philadelphia,	University.
Guest, Middleton Semmes,	Baltimore, Md.,	C. J. Cleborne.
Gunning, Thomas F.,	Fall River, Mass.,	O. B. Jones.
Haines, E. Everitt,	Vincentown, N. J.,	J. C. Brown.
Haines, Rowland L.,	Norristown,	H. S. Dolly.
Hamann, Carl A.,	Davenport, Iowa,	A. W. Cantwell.
Hanly, M. William, A.B.,	Hopedale, Ohio,	University.
Harland, William, G. B.,	Germantown,	University.

Digitized by Google

Harris, Charles D.,	Philadelphia,	University.
Hoch, Charles August,	Basel, Switzerland,	W. R. Hoch.
Holly, Clarke W., B.A. (Yale),	Philadelphia,	W. J. Holly.
Hoopes, William E.,	Media,	University.
Howell, William P.,	Wheeling, W. Va.,	University.
Hunsicker, James,	Norristown,	E. M. Corson.
Hunter, Wallace,	Stormstown,	J. Y. Dale.
Kamerly, E. Forrest, Jr.,	Town Hill,	E. F. Kamerly.
Kaufman, Frederick S.,	Auburn,	J. W. Loch.
Kawamoto, Junzo, Ph.B. (Oberlin),	Kobe, Japan,	University.
Kennedy, Robert M.,	Pottsville,	J.T.& J.S.Carpenter.
Kerr, Edward,	Downingtown,	Thos. E. Parke.
Kolb, Louis John,	Philadelphia,	University.
Langhorne, Stepney T.,	Philadelphia,	University.
Lathrop, Walter,	Montrose,	University.
Leisher, Charles A.,	McAlisterville,	W. H. Hoops.
Lesher, George S.,	Richland,	J. D. Zimmerman.
Levis, Minford,	Philadelphia,	R. J. Levis.
Lewars, Horace S.,	Philadelphia,	F. X. Dercum.
Leys, James Farquharson,	Philadelphia,	University.
Lincoln, Walter R., B.A. (Univ. Pa.),	Philadelphia,	University.
Longaker, Daniel,	Norristown,	J. Wm. White.
List, Charles W.,	Wheeling, W. Va.,	Jno. L. Dicky.
McComb, George S., M.E.,	Hubers,	J. M. & H.C. Deaver.
McConkey, Thomas G.,	Springfield, Ohio,	University.
McFadden, Charles J.,	Lewistown,	J. T. Mahon.
Maison, Robert S., A.B. (Univ. Pa.),	Philadelphia,	University.
Malone, Charles A.,	Lancaster,	D. McCormick.
Maloney, John B.,	Key West, Fla.,	P. Bugos.
Martin, Charles S.,	Allentown,	E. G. Martin.
Marshall, Robert J.,	Camden, N. J.,	University.
Maglaughlin, W. Kieffer, A.B. (Dickinson),	Carlisle,	University.
Maury, John M.,	Memphis, Tenn.,	University.
Menah, William McClellan,	Philadelphia,	University.
Miller, Emmitt Palmer,	Stroudsburg,	University.
Morris, Daniel E.,	Millcove, P. E. I.,	Martin & McLean.
Muttart, George,	Souris, P. E. I.,	E. B. Muttart.
Myers, Frank F.,	Lewistown,	J. T. Mahon.
Niesley, Charles M., B.S. (Layfayette),	Mechanicsburg,	University.
Niblock, Charles A., A.B. (C.H.S.),	Philadelphia,	University.
Nicholson, Joseph L.,	Camden, N. J.,	University.
O'Drain, Thomas L., A.B.,	Philadelphia,	University.
Pennepacker, Edward M.,	Scranton,	H. Pennepacker.
Potter, Edwin S.,	Philadelphia,	C. S. Dolley.
Price, Lucius G.,	Auburn, N. Y.,	F. E. Maine.
Reese, David L.,	Renovo,	D. J. Reese.
Rettew, David P.,	Brandywine Manor,	N. G. Thompson.
Reynolds, Frederick P.,	Elmira, N. Y.,	Henry Flood.
Rhett, Henry J., Ph.B.,	Philadelphia,	Henry M. Wetherill, Jr.

Digitized by Google

Richards, Oscar M., B.S., (Lafayette),	Easton,	D. W. Richards.
Ruffner, Samuel A.,	Ashley,	E. L. Diefenderfer.
Russell, William W., C.E.,	Minneapolis, Minn.,	University.
Samaniego, José A.,	Chihuahua, Mex.,	N. Samaniego.
Saxman, Nathaniel H., A.B. Franklin and Marshall),	Latrobe,	University.
Schaadt, Clinton J., A.B. (Muhlenberg),	Coplay,	University.
Scott, J. Ernest,	Cross Creek,	T. C. M. Stockton.
Shaw, John W., Jr.,	Lewistown,	University.
Smith, Arthur L., A.B. (Rochester),	Meridian, N. Y.,	Edw. B. Angell.
Snyder, Harvey L.,	Old Zionsville,	University.
Spelman, James F.,	Fulda, Minn.,	L. L. Rewalt.
Steinwandel, John A.,	Lancaster,	University.
Strayer, Edgar,	Paterson,	S. A. Suloff.
Strickler, Charles Miller,	Lebanon,	Geo. P. Lineaweaver.
Summers, Arthur P., Ph.B. (Yale),	Col. Springs, Col.,	University.
Torrance, Harry S.,	Cairo, Ill.,	D. A. Carmichael.
Tyson, Thomas P.,	Jenkintown,	Wm. C. Parry.
Updegrove, Jacob D., A.M. (Lafayette),	Easton,	Traill & E. M. Green.
Vanneman, Walter, A.R.,	Camden, N. J.,	University.
Van Wart, George Clowes,	Fredericton, N. B.,	G. H. Coburn.
Wagner, Edward C. O., B.A. (Canisius), Buffalo, N. Y.,	Wilkes-Barre,	Univ. of Leipsic.
Walker, William K.,	Phœnixville,	W. R. Batt.
Walmer, Ephraim L.,	Linglestown,	E. H. James.
Webster, I. Daniel,	Wakefield,	Edw. Martin.
Weems, Marcus A.,	Columbia, Texas,	M. L. Weems.
Weida, Isidore J.,	Shamrock,	J. F. Wertz.
Welty, Cullen F.,	Canton, Ohio,	A. C. Brant.
Windsor, Arthur D.,	Titusville,	University.
Yeager, Norton R.,	Allentown,	W. H. Hartzell.

Students of the First Year, 128.

SPECIAL STUDENTS.

Arndt, Oliver E. E., M.D.,	Easton,	P. F. Arndt.
Boyer, Henry P.,	Lafayette Hill,	University.
Brinton, George,	Philadelphia,	University.
Eastlake, A. C. deLano,	Germantown,	University.
Evans, Horace Y., Jr.,	Haverford College,	Horace Y. Evans.
Hardcastle, Edward M.,	Trappe, Md.,	University.
Kelly, William Clarence, Ph.G.,	Thurlow,	John B. Weston.
Klugh, Oliver R.,	Highspire,	E. J. Putt.
Kobayashi, Sankio, M.D.,	Wakayama, Japan,	Univ. of Tokio.
Leinbach, Elmer E. E.,	Leinback's,	M. Koch.
Macdonnell, Æneas,	Montreal, Can.,	University,
Pool, Stewart N.,	McDonough, Del.,	Wm. Hamilton.
Sayre, Clifford, M.D.,	Spencer's Island, N.S.,	University.
Van Pelt, Harry,	Salem, N. J.,	C. M. Sherron.

Digitized by Google

Warwick, Hill S., M.D.,	Jersey City, N. J.,	Coll. of P & S., N. Y.
Wethered, John L.,	Chestertown, Md.,	University.
Whitehead, Richard H., M.D.,	Salisbury, N. C.,	University of Va.
Young, Henry E.,	Montreal, Can.,	University.

TOTAL.

Students of the Fourth Year	3
Students of the Third Year	136
Students of the Second Year	150
Students of the First Year	128
Special Students	18
	435

The total number of new matriculates the present session, including those admitted to advanced standing, is 169.

SUMMARY.

Armenia	1	Maine	1	Pennsylvania	283
Australia	1	Maryland	11	Prince Edw. Island	2
Brazil	1	Massachusetts	1	Rhode Island	1
Canada	2	Mexico	4	South Carolina	6
Colorado	1	Minnesota	6	Switzerland	1
Cuba	2	Mississippi	2	Tennessee	3
Delaware	10	Missouri	2	Texas	4
District Columbia	4	New Brunswick	4	U. S. of Colombia	1
Florida	1	New Hampshire	1	Virginia	3
Illinois	4	New Jersey	23	Washington Ter	1
India	1	New Mexico	1	West Indies	1
Indiana	1	New York	10	West Virginia	4
Indian Territory	1	Nicaragua	4	Wisconsin	2
Iowa	3	North Carolina	1		
Ireland	1	Nova Scotia	3	Total	435
Japan	3	Ohio	9		
Kentucky	2	Oregon	1		

ORGANIZATION OF THE MEDICAL SCHOOL.

This venerable Institution, the oldest of its class in the United States, was founded in 1765, by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. Through Dr. Morgan, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of Cullen, Dr. WM. SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica, and in June, 1768, a "Commence-

Digitized by Google

ment was held" at which medical honors were bestowed, the first in point of time in America. In 1769, Dr. BENJAMIN RUSH was elected Professor of Chemistry, and Dr. THOS. BOND of Clinical Medicine.

To the Faculty thus composed of MORGAN, SHIPPEN, KUHN, RUSH and BOND have succeeded, at various times, professors whose reputation has been national, such as BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. RODGERS, CARSON, the elder PEPPER, FRANCIS GURNEY SMITH and NEILL.

The number of its graduates is ten thousand and three.

ADMISSION.

Candidates for admission are required: *First*, to write an *Essay* (not exceeding in length a page of foolscap), as a test of Orthography and Grammar; *second*, to pass an examination in *Elementary Physics* (Part I. of Fowne's *Chemistry*). A Candidate who has received a collegiate degree, or passed the matriculate examination of a recognized college, or who has a certificate covering the *required* subjects from a recognized normal or high school, or a duly organized county medical society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania—may enter without examination.

Examinations for admission are held Monday, May 7th, and Friday, September 28th, but arrangements may be made for examination at other times throughout the year, except July and August, upon application to the Secretary.*

The attention of those looking toward the study of Medicine is particularly called to the unusual advantages of the Course in Philosophy in the College Department of the University. Students who have pursued satisfactorily the last two years of that course will be exempted from the preliminary examination.

Students who have attended one course in a Medical School (not Homœopathic or Eclectic), are admitted to the Second Year of the University course, upon passing a satisfactory examination in *General Chemistry*, *Materia Medica* and *Pharmacy*, and the elements of *General Pathology*. Students who have attended two courses in a regular Medical School are admitted to the third year, upon passing satisfactorily an examination in *General* and *Medical Chemistry*, *Materia Medica* and *Pharmacy*, *Anatomy*, *Physiology* and the elements of *General Pathology*.

* Examinations for admission will also be held annually during the last week in June in Boston, Mass., Rochester, N. Y., Meadville, Pa., Raleigh, N. C., Columbia, Tenn., Atlanta, Ga., Mobile, Ala., Cincinnati, O., Chicago, Ill., Detroit, Mich., St. Louis, Mo., St. Paul, Minn., San Francisco, Cal., Galveston, Texas. The names of the examiners will be found on page 70.

Digitized by Google

Graduates of regular medical schools in good standing are admitted to the *third* year without an examination. The diplomas of graduates from other schools are not endorsed by the Faculty of this school for registration except after an examination of their holders, similar in all respects to that required of its own graduates. The fee for such examination is thirty dollars.

Graduates of Colleges of Pharmacy and Dental Colleges in good standing are admitted to the *second* year upon passing the entrance examination only.

Examinations for admission to advanced standing for Session 1888–9 will be held Thursday, September 27th, at noon.*

COURSE OF STUDY.

The course of study earnestly recommended to students extends over four years, but the course is also arranged for three years, at the end of which the degree may be conferred. For the Fourth Year, almost wholly practical in character, a certificate is granted in addition to the diploma, to those passing a satisfactory examination in the studies of that year.

The FIRST YEAR is largely occupied with work in the various laboratories of Chemistry, Pharmacy, Osteology, Histology, and in Dissection. The first year student may also attend clinical lectures in general medicine and general surgery. In the SECOND YEAR, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Pathological Histology and Physical Diagnosis. Dissection is continued. Throughout the SECOND and THIRD years, the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals, and the clinics in special departments at the former. Special *bedside* instruction in Clinical Medicine, including Physical Diagnosis and Laryngology, in Surgery, and in Gynæcology is given in the third year, as well as opportunities for the practical study of diseases of the eye, ear, throat, and skin, and for acquiring proficiency with the various instruments employed. For this purpose, the third-year class is divided into sections, each of which receives direct personal instruction.

The course of instruction is so arranged as to permit mainly constant introduction of new material, while retaining the repetition of essential subjects aimed at by the old methods. The laboratory instruction is so co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

* Students from other colleges admitted to the second year who have not had instruction in Practical Histology are expected to make up such deficiency by taking a special course, as the second year's work presupposes a knowledge of the technique of the microscope. Students admitted to the third year must make up deficiencies in Pathological Histology as well.

Digitized by Google

Advanced students are encouraged to make original researches in the laboratories of pharmacy, chemistry, physiology, pathology, and experimental therapeutics.

The result of the adoption of the prolonged and graded course on the composition of the classes and on their proficiency has been most gratifying. A proportion of students, much larger than ever before, have had a good education, either in colleges or in academies, and their deportment has been characterized by increased earnestness and zeal. The annual examinations have steadily advanced in grade, while those for graduation have shown a degree of merit, and the graduation Theses an amount of scientific attainment and literary culture, higher than has heretofore been found.

Students of the University may attend, without additional charge, the lectures and recitations in all other departments, provided that the consent of the Dean of the department has first been obtained.

OUTLINE OF THE COURSE.

FIRST YEAR.	Total hours per week.
Anatomy—3 lectures per week, 10 hours practical anatomy	13
Topographical anatomy—2 lectures per week	2
Histology—2½ hours laboratory instruction, 1 hour demonstration for half session	3
Materia Medica and Pharmacy—1 lecture per week, 2 hours laboratory	3
General Chemistry, including Chemical Physics—2 lectures per week, 4 hours laboratory	6
Physiology—3 lectures per week	3
General Pathology—1 lecture per week, until March 1st	1
Hygiene—1 lecture per week until March 1st, after which 2 lectures	1
General Clinics, Medical and Surgical	4
Bandaging—1 hour lecture, 1 hour practice	2

Final Examinations at the end of the Course: General Chemistry, Osteology, Histology, Materia Medica and Pharmacy, and Elements of General Pathology.

SECOND YEAR.	
Anatomy—3 lectures per week, 10 hours evening dissection	13
Topographical Anatomy—2 lectures per week	2
Medical Chemistry—1 lecture per week, 4 hours laboratory	5
Physiology—3 lectures per week	3
General Pathology and Morbid Anatomy—2 lectures per week, 1½ hours laboratory	3½
Physical Diagnosis—1 lecture per week, 1 hour demonstration	2
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Obstetrics—2 lectures per week	2

Digitized by Google

General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics 8
Special Clinics (Nervous Diseases, Diseases of Skin, Eye, Ear, Gynæcology 5

Final examinations at the end of the Course: Anatomy, including Topographical Anatomy, Medical Chemistry, and Physiology.

THIRD YEAR.

General Pathology and Morbid Anatomy—2 lectures per week . . . 2
Demonstrations in Morbid Anatomy—2 hours per week 2
Therapeutics—2 lectures per week 2
Theory and Practice of Medicine—3 lectures per week 3
Surgery—3 lectures per week 3
Operative Surgery and Minor Surgery,—1 lecture per week, 2 hours' practice 3½
Obstetrics—2 lectures per week 2
Operative Obstetrics—1 hour practice for half the term . . . . . ½
Diseases of Woman and Children—1 lecture per week 1
*Gynæcology—1 lecture per week, 1 hour bedside teaching 2
*Bedside Instruction in Practical Medicine 1
*Bedside Instruction in Practical Surgery 1
General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics 8
Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Paediatrics, Gynæcology at both University and Philadelphia Hospitals), Genito-Urinary Diseases 8½
Medical Jurisprudence and Toxicology 1

Final examinations at the end of the Course: General and Special Pathological Anatomy, Therapeutics, Theory and Practice of Medicine, Clinical Medicine, Surgery, Obstetrics, and Diseases of Women and Children.

FOURTH YEAR.

Clinical Medicine and Physical Diagnosis, including Laryngology—2 hours clinical lecture, 2 hours practical instruction 4
Clinical Surgery—2 hours clinical lecture, 1 hour practical instruction 3
Operative Surgery—1 hour practical instruction for half the term . . ½
Nervous Diseases and Electro-Therapeutics—1 hour clinical lecture, 1½ hours practical instruction 2½
Mental Diseases—1 hour lecture 1
Gynæcology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction 3
Paediatrics—1 hour practical instruction for half the session, 1 hour clinical lecture for half the session 1
Dermatology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction 2½

* For these courses the class is divided into sections, so that each student may receive direct personal instruction.

Digitized by Google

Ophthalmology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction 3
Otology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction for half the session 2½
Clinical and Operative Obstetrics—1 hour practical instruction for half the session . . . . . ½
Orthopædic Surgery—1 hour didactic lecture for half the session, 1 hour practical instruction for half the session 1
Genito-Urinary Diseases—1 hour clinical lecture, 1 hour practical instruction, each for half the term 1
Medical Jurisprudence and Toxicology—1 hour lecture 1

To all Students who pursue a four years' course, and who pass a satisfactory examination in the studies of the fourth year, will be awarded a certificate in addition to the diploma. The Degree of Doctor of Medicine will also be conferred on graduates of other medical schools in good standing who take the third year of the three years' curriculum, or who attend the fourth year, and who pass a satisfactory examination in Morbid Anatomy, Therapeutics, Practice of Medicine, Surgery, and Obstetrics.

TEXT-BOOKS.

FIRST YEAR.

TEXT-BOOKS.	COLLATERAL READING.
Chemistry: Fownes's Chemistry; Muter's Analytical Chemistry.	Wurts's Elements of Modern Chemistry; Richter's Chemistry.
Materia Medica: H. C. Wood. Mann on Prescription Writing.	Wood & Bache's Dispensatory.
Anatomy: Leidy; Gray; Schaeffer's Practical Histology.	Quain; Wilson; Allen; Stricker's Histology.
Physiology: Yeo.	Foster.
General Pathology: Rindfleisch's Elements of Pathology, translated by Mercur; Tyson's Cell Doctrine, pp. 127–152.	

SECOND AND THIRD YEARS.

Medical Chemistry: Greene; Tyson's Practical Examination of Urine; Marshall & Smith's Chemical Analysis of Urine.	Wormley's Micro-Chemistry of Poisons; 2d edition.
Anatomy: Leidy, Gray.	Quain; Allen; Wilson; Stricker.
Physiology: Foster.	Carpenter.
General Pathology and Morbid Anatomy: Rindfleisch's Elements; Coats's Manual of Pathology.	Green, Pathology and Morbid Anatomy; Orth's Diagnosis in Pathological Anatomy.
Therapeutics: H. C. Wood.	Wood & Bache's Dispensatory.
Practice of Medicine: Flint or Roberts; Bruen's Physical Diagnosis.	Pepper's System of Practical Medicine; Stille's Therapeutics; Stille's & Maisch's Dispensatory;

Digitized by Google

	Duhring on Diseases of the Skin; Tyson on Bright's Disease and Diabetes; Seiler, Diseases of Throat and Nose.
Surgery: Agnew; Ashhurst.	Ashhurst's International Encyclopædia of Surgery; Erichsen; Billroth's Surgical Pathology.
Obstetrics: Playfair's Midwifery.	Galabin's Midwifery; Grieg Smith's Abdominal Surgery; Meigs and Pepper on Children; Starr on Children.
Gynæcology: Goodell's Lessons in Gynæcology.	Thomas on Diseases of Women; Emmet's Gynæcology.
Medical Jurisprudence and Toxicology: Reese.	Reese's Manual of Toxicology; Taylor's Medical Jurisprudence, by Reese.

The cost of the necessary text-books is within $50, distributed over the three years.

Digitized by Google

ORDER OF LECTURES, DAILY.—FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.	Chemical Laboratory, two hrs.	Topographical Anatomy.	Dissection.	Philadelphia Hospital, Medical and Surgical Clinics, 10 to 12.
10 A.M.	Hygiene.	Chemical Laboratory, two hrs.		Gen. Pathology, until March 1.		
11 A.M.	Topographical Anatomy.		Dissection.		Materia Medica.	
12 M.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Practical Normal Histology, one section two hours. Others Dissection.	Practical Normal Histology, one section two hours. Osteology, or Dissection.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	
1 P.M.						
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Histology.	Physiology.	Bandaging, Lecture.	Physiology.	
7½ to 10 P.M.	Pharmacy, Laboratory.	Bandaging.	Pharmacy, Laboratory.	Bandaging.	Bandaging.	

U. H. University Hospital.

For the study of Histology, Osteology and Syndesmology, the class is divided into sections, one of which is occupied at a time. Students not thus engaged dissect or attend Clinics.—See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8½ A.M.						Medical Chemistry, Laboratory two hours.
9 A.M.			Phila. Hospital, Gynæcol. Clinic.	Medical Chemistry.	Medical Chemistry, Laboratory two hours.	
10 A.M.	Physical Diagnosis, Lecture.	Practical, Physical Diagnosis. Sections, U. H.	Phila. or Penna. Hospital, Med., Surg. and Clinics, 9 to 12.	Topographical Anatomy.		Phila. or Penna Hosp., Med. and Surgical Clinics.
11 A.M.	Topographical Anatomy.	Morbid Anatomy.		Medical Clinic.	Morbid Anatomy.	
12 M.	Practice.	Surgery.	Practical Pathol. Histology, one section one hour. Others attend Gynæcological and General Surgical Clinic, U. H.	Surgery.	Surgery.	Practical Pathol. Histology, one section two hours. Others attend Gen. Med. and Surg. Clinic, U. H.
1 P.M.	Practical Physical Diagnosis, Sections. Others attend Clinic, Diseases of the Ear, U. H.	Practical Pathol. Histology, one section one hour. Others attend Clinic, Skin Diseases, U. H.		Practical Pathol. Histology, one section one hour. Others attend Clinic, Diseases of Eye, U. H.	Practical Pathol. Histology, one section one hour. Others attend Clinic, Nervous Diseases, U. H.	
3½ P.M.	Obstetrics.	Anatomy.	Obstetrics.	Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.	Therapeutics.	Physiology.	Therapeutics.
5½ P.M.		Practice.		Practice.		
7½ to 10 P.M	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	

U. H. University Hospital.

For the study of Pathological Histology and Physical Diagnosis the Class is divided into sections, one of which is occupied at a time; those of the Second Year Students not thus engaged attend Clinics.

Digitized by Google

ORDER OF LECTURES, DAILY.—THIRD YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.	Demonstrations in Morb. Anat., 2 Secs.	Clinic Paediatrics U.H., until Jan. 1st.	Philadelphia or Penna. Hospital, Medical and Surgical Clinics.		Autopsies at 9 o'clock.	Philadelphia or Penna. Hospital, Medical and Surgical Clinics.
11 A.M.	Demonstrations in Morb. Anat., 2 Secs.	Morbid Anatomy.		Medical Clinic, U. H.	Morbid Anatomy.	
12 M.	Practice.	Surgery.	Gynæcological Clinic, U. H.	Surgery.	Surgery.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H. Ward Classes, U. H.	Clinic, Diseases of the Skin, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H. Ward Classes, U. H.	Clinic, Nervous Diseases, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.
3½ P.M.	Obstetrics.	Diseases of Women and Children.	Obstetrics.	Didactic Gynæcology, U. H.	Didactic Dermatology until Jan. 1st. Genito-Urinary Diseases, U. H., after Jan. 1st.	Med. Jurisprudence.
4½ P.M.	Operative Surgery and Fracture Dressing, Lecture.	Didactic Ophthalmology, U. H.	Didactic Otology, until Jan. 1st., U. H. Orthop. Surg., after Jan. 1st.	Therapeutics.	Practical Surgery, two sections, two hours.	Therapeutics.
5½ P.M.	Practical Surgery, two sections. Oper. Obstetrics, sections, after Jan. 1st.	Practice.		Practice.	Operative Obstetrics, sections, after Jan. 1st.	

U. H. University Hospital.

For WARD CLASS instruction the Third Year Class is divided in sections. See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—FOURTH YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.		Clinic, Paediatrics, U.H., until Jan. 1st.	Philadelphia Hospital, Medical, Surgical and Gynæcol. Clinics. 9 to 3.		Autopsies at 9 o'clock.	Philada. Hospital Clinics. After Jan. 1st, Practical Instruction, Pædiatrics.* 9½ A.M.
11 A.M.	Practical Dermatology, U. H.			Medical Clinic, U. H.		
12 M.		Practical Gynæcology, U. H.	Gynæcological Clinic, U. H.	Practical Instruction, Orthopædics, until Jan. 1st, U. H. Practical Laryngology, after Jan. 1st, U. H.	Clinical Surgery, U. H.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Clinic, Diseases of the Skin, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H.	Clinic on Nervous Diseases, U. H.	Surgical Clinic, U. H.
2½ P.M.	Clinical Medicine.			Practical Ophthalmology, U.H.		
3½ P.M.	Mental Diseases.	Practical Instruction, Nervous Diseases, U. H.	Electro-Therapeutics, until Jan. 1st., U. H., Prac. Instruction, Otology, after Jan. 1st, U. H.	Didactic Gynæcology, U. H.	Didactic Dermatology, until Jan. 1st. Clinic, Genito-Urinary Diseases, after Jan. 1st, U. H.	Medical Jurisprudence.
4½ P.M.	Operative Obstetrics, until Jan. 1st.	Didactic Ophthalmology, U. H.	Didactic Otol., until Jan. 1st, U. H. Orthopædic Surgery, after Jan. 1st.		Genito-Urinary Diseases, until Jan. 1st. Operative Surgery, after Jan. 1st.	

U. H. University Hospital.
* Children's Hospital.

Digitized by Google

ROSTER OF BEDSIDE INSTRUCTION AND SPECIAL CLINICS FOR STUDENTS OF THE THIRD YEAR. SESSION 1887–1888.

For attendance upon these Courses, the Third Year Class is divided into four sections, A, B, C, and D, which attend as follows:—

First Period, from Monday, Oct. 3d, to Friday, Nov. 18th, inclusive.

	Monday.	Tuesday.	Thursday.	Friday.
Prof. Goodell	D	—	A	B
" Ashhurst	A	B	C	—
" Osler	B	D	—	A
Special Clinics	C	A & C	B & D	C & D

Second Period, from Monday, Nov. 21st, to Friday, Jan. 13th, inclusive.

Prof. Goodell	A	—	B	C
" Ashhurst	B	C	D	—
" Osler	C	B	—	D
Special Clinics	D	A & D	A & C	A & B

Third Period, from Monday, Jan. 16th, to Friday, March 2d, inclusive.

Prof. Goodell	B	—	C	D
" Ashhurst	C	D	A	—
" Osler	D	A	—	C
Special Clinics	A	B & C	B & D	A & B

Fourth Period, from Monday, March 5th, to Friday, April 13th, inclusive.

Prof. Goodell	C	—	D	A
" Ashhurst	D	A	B	—
" Osler	A	C	—	B
Special Clinics	B	B & D	A & C	C & D

The instruction is given at the University Hospital at 1 o'clock. Professor Osler will meet the sections of the Third Class in the Front Ward, Gibson Wing; Prof. Goodell in the Lower Lecture Room; and Prof. Ashhurst in the Front Ward, first floor. The Special Clinics are held in the Upper Lecture Room.

This arrangement enables each section to attend, during an equal portion of the term, the clinical lectures on special subjects, as follows:—

1 P.M.

Monday.	*Tuesday.*	*Thursday.*	*Friday.*
Prof. STRAWBRIDGE.	Prof. DUHRING.	Prof. NORRIS.	Prof. WOOD.
Otology.	*Dermatology.*	*Ophthalmology.*	*Nervous Diseases.*

The entire Third Year Class will attend the General Medical, Surgical,

Digitized by Google

and Gynæcological Clinics, held on Wednesday and Saturday, from 12 to 2 o'clock, in the Upper Lecture Room; also Medical Clinic on Thursday, at 11 o'clock, and the Demonstrations in Morbid Anatomy, by Prof. Tyson and Dr. Formad, at 10 and 11 o'clock on Monday.

SPECIAL ROSTER OF LABORATORY INSTRUCTION IN HISTOLOGY, OSTEOLOGY, AND SYNDESMOLOGY, FOR STUDENTS OF THE FIRST YEAR. SESSION 1887–1888.

For instruction in these Laboratories, the First Year Class is divided into five sections, A, B, C, D and E, which attend as follows:—

1st Period. *From Monday, October 3d, to November 12th, inclusive.*

	12 o'clock.					
	Monday.	Tuesday.	Wed.	Thursday.	Friday.	Saturday.
Histology,	A	A	A	A	A	—
Osteology,	C & D	—	—	C & D	C & D	—

2d Period. *From Monday, November 14th, to December 17th, inclusive.*

	12 o'clock.					
Histology,	B	B	B	B	B	—
Osteology,	C & D	—	—	C & D	C & D	—

3d Period. *From December 19th, to January 28th, inclusive.*

	12 o'clock.					
Histology,	C	C	C	C	C	—
Osteology,	A & E	—	—	A & E	A & E	—

4th Period. *From January 30th, to March 3d, inclusive.*

	12 o'clock.					
Histology,	D	D	D	D	D	—
Osteology,	A & E	—	—	A & E	A & E	—

5th Period. *From March 5th, to April 14th, inclusive.*

	12 o'clock.					
Histology,	E	E	E	E	E	—
Osteology,	B	—	—	B	B	—

All students not occupied during the above hours, dissect from 12 to 2 daily, and from 9 to 11 Friday.

GRADUATION.

At the close of the third year, a student who has passed all examinations satisfactorily, receives the Degree of Doctor of Medicine on the following conditions:

Digitized by Google

I. He must be 21 years of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of the curriculum, and have attended the practical instruction in all departments; and his last course of instruction must have been at this School. (A Thesis is no longer required, but students are recommended to prepare Theses in competition for the various Prizes.)

III. After notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

IV. He must be present at Commencement, unless excused by the Faculty.

ADDITIONAL INSTRUCTION.

In addition to the required Course and to the voluntary fourth year, Clinics, both general and special, and Lectures, both Theoretical and Practical, are continued after Commencement until the middle of June. All subjects connected with the fundamental departments of medicine, or with its several subdivisions, as determined by usage, are thoroughly taught in one or other of these courses; and it is strongly urged upon all students, especially those of the second and third years, to continue their studies during the spring and summer, and, by all means, to pursue the studies of the fourth year.

ARRANGEMENT OF SESSIONS.

The Academic Year is divided into two Sessions: 1st, the WINTER SESSION, on which alone attendance is required, and which is preceded by an INTRODUCTORY COURSE of two weeks, and 2d, the SPRING SESSION.

The SPRING SESSION 1888 begins Monday, May 7th, and continues until the middle of June.

The INTRODUCTORY COURSE for the Session of 1888–9 begins Monday, September 17th.

The WINTER SESSION 1888–9 begins on Monday, October 1st, and ends at Commencement, on Wednesday, May 1st, 1889.

EXPENSES.

WINTER TERM.

First Year.

Matriculation Fee	$5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection	$150 00
Dissecting material	$1 a part.

Digitized by Google

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection $150 00
Dissecting material . . . . . $1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee) $150 00
Fee for the full third year course to graduates of other schools, including privilege of applying for graduation (no graduation fee) 150 00
Material for operating . . . . . $1 a part.

Fourth Year (Voluntary).

For general ticket, including all the practical courses of this year (no graduation fee) $150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee) 200 00

☞ The Tuition fee of $150 each year is *on condition that it is paid before November 1st.* If a division of payments is desired the fee will be $160 for the year. Eighty dollars to be paid before November 1st, and $80 before February 1st. At least twenty-five dollars must be paid on account before the student can be admitted to the chemical laboratory.

SPRING SESSION.

Matriculation fee (paid once only) $5 00
Tuition fee 30 00
This sum will be credited on account of the fee for the ensuing Winter Term.

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including bandaging and operating, to graduates of this school $75 00
For a single Course of Lectures, except Materia Medica 20 00
For Course on Materia Medica, and on Bandaging and Operating, each 10 00
For Practical Course in the Chemical Laboratory 25 00
For the Course in Practical Gynecology of the third year . . . 25 00
For any one of the remaining Practical Courses of the third year 15 00

Digitized by Google

Graduates of the School are admitted to the LECTURES free of charge; but they pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of $5 with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

SCHOLARSHIPS.

A competitive examination of candidates to fill six free scholarships is held annually. (In 1888, on Wednesday, September 26th, at 12 o'clock, noon.) The candidates will be required—

First. To furnish satisfactory evidence that they are without means to defray the expenses of a medical education.

Second. To write a brief autobiography, not exceeding a page of foolscap, which will serve as a test of their qualifications in orthography and grammar.

Third. To pass a written examination in Latin prose translation on the first three books of Cæsar, and a written examination in Physics, which may embrace questions relating to the general properties of Matter, Mechanics, Heat, Light, and Electricity. The examination is not confined to the subject matter of any text-book, but Balfour Stewart's Physics covers the ground as nearly as any.

Fourth. They will be required to pay an examination fee of $5, which is not returned, but is transferred to the matriculation fee in the case of the successful candidates.

Candidates who propose to present themselves for examination will send their names, accompanied by the necessary certificate required by the first condition, to the Secretary of the Faculty of Medicine, *before September 15th*, and appear without further notice.

FACILITIES FOR INSTRUCTION.

The instruction in the Medical Department is conducted in the MEDICAL HALL, the LABORATORY BUILDING, and the HOSPITAL OF THE UNIVERSITY.

The Medical Hall contains the Wistar and Horner Museum, the Histological, Osteological, Physiological, Pathological, and Pharmaceutical Laboratories, and the Stillé Medical Library.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, has been annually augmented, and is unequaled in the United States

Digitized by Google

for the number and variety of its specimens illustrating the normal and morbid anatomy of every part of the human body. It also contains a large number of preparations in comparative anatomy, and an extensive collection of models, used in illustrating the lectures. The Museum is open on Wednesdays and Saturdays, from 9 A. M. to 12 M., throughout the session, to matriculated students.

THE CABINET OF MORBID ANATOMY, collected by Dr. George B. Wood, and given by him to the University, contains an extensive series of wet preparations, drawings, and models in wax and other materials, a collection unrivaled in extent and value, for illustrating diseases of the internal organs and of the skin.

The late distinguished Professor of Obstetrics, Dr. Hugh L. Hodge, enriched the facilities of Instruction in that special branch by the gift of his valuable Cabinet.

Through a like liberality of Dr. Henry H. Smith, Emeritus Professor of Surgery, and of the late Professor of Clinical Surgery, Dr. John Neill, the University has a further extensive and valuable gift of morbid specimens, models and drawings.

THE HISTOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy, and the direct guidance of the Demonstrators of Histology. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the first course student to become practically familiar with the most approved methods of microscopical technology, as well as with the Normal Histology of all the tissues and organs. During the spring months it is open for those who desire a course embracing those refinements and minutiæ, which of necessity are omitted in the regular winter's work. Especial facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

THE OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. The first year student is required, in this Laboratory, to make himself familiar with the skeleton and the articulations, as a part of his instruction in practical anatomy.

THE PHYSIOLOGICAL LABORATORY is under the personal direction of the Professor of Physiology and the Demonstrator. It is furnished with every form of apparatus likely to be used by the practical physiologist. Every facility is afforded advanced students and graduates pursuing special studies and who desire to pursue in Physiology. The Laboratory is open throughout the year, except during July and August.

THE PATHOLOGICAL LABORATORY, under the direction of the Professor of General Pathology and Morbid Anatomy, and the Demonstrator of Path-

Digitized by Google

ological Histology, was opened in 1874, and attracts, from remote sections of the country, a large number of physicians and students who desire special preparation in Microscopic Technology, Normal and Pathological Histology, and Experimental Pathology. It is furnished with microscopes, and all appliances requisite for practical study and for original research.

This Laboratory is also supplied with a complete outfit for the investigation of Bacteria in their relation to infectious diseases, and for the study of the lower fungi.

Each student of the second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in Pathological Histology, in Mycology, and in the Microscopy of Urine.

Each student of the third year receives advanced practical instruction in Morbid Anatomy, and in the making of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, along with the microscopic sections, are features of this course.

The practical work, during the regular winter session, is obligatory on students of both the second and the third year.

Special instruction and guidance in original research are given by the demonstrators to advanced students.

The Laboratory is open throughout the year, except during July and August.

THE PHARMACEUTICAL LABORATORY is in charge of the Professor of Materia Medica and Pharmacy and the Demonstraters of Pharmacy. It is furnished with tables and all necessary apparatus. In it the student learns not only the various pharmaceutical processes, but also that familiarity with drugs which can be acquired only by handling them.

THE LABORATORY OF EXPERIMENTAL THERAPEUTICS, under the direction of the Professor of Materia Medica and Therapeutics, is furnished with all apparatus and instruments necessary for the study of the physiological action of medicines.

THE DEPARTMENT OF PRACTICAL OBSTETRICS is under the care of the Professor of Obstetrics and the Demonstrator. It includes operations on the cadaver and with the manikin, while lying-in cases are given to advanced students.

THE STILLÉ MEDICAL LIBRARY, founded by Professor Alfred Stillé, now contains over six thousand bound volumes and as many pamphlets. During the Winter and Spring Courses it is accessible to advanced students and graduates of the Medical Department under appropriate regulations.

Digitized by Google

THE LABORATORY BUILDING.

The first floor is arranged for the Operating Room or Infirmary of the Dental Department, and has the necessary waiting-rooms, etc., carefully adapted to the requirements of this department. The entrance is on Spruce Street.

The second and third floors are fitted up as chemical laboratories; on the second is the laboratory of General Chemistry, and on the third that of Medical Chemistry. In addition to the main room, on each story, there are four balance rooms, provided with instruments for attaining accuracy in Chemical research.

The fourth floor is occupied by the Dissecting Room.

CHEMICAL LABORATORIES.—The Working Laboratories for Practical Chemistry are under the supervision of the Professor of Chemistry and the Demonstrator, with assistants. Students of the First Year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his tests.

Students of the Second Year devote four hours per week to practical work in the Laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and complex mixtures.

DISSECTING ROOM.—In constructing the new Dissecting Room of the University, care was taken to provide everything that experience suggested as being necessary or desirable. The room is at the top of the Laboratory Building, and is one hundred and forty feet in length by forty feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. The tables have stone tops, which cannot absorb moisture and can be kept perfectly clean. There are numerous washstands and private closets for the use of each student. Cleanliness is rigidly enforced. The preservation of the cadaver has been so successfully accomplished as almost to do away with the dangers of dissecting wounds. Dissection is legalized in Pennsylvania.

The Room is open throughout the year except in July and August, under the superintendence of the Professor of Anatomy and the Demonstrators.

PRACTICAL SURGERY.—The application of bandages and dressings is

Digitized by Google

taught to students in their First Year, while surgical operations on the cadaver are a part of the practical instruction to students of the Third Year, under the supervision of the Professor and Demonstrators of Surgery. Instruments, splints and bandages are supplied without expense to the student.

THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

The University Hospital, constructed according to the best established principles of hospital architecture, is provided with all the appliances pertaining to such institutions of the best class. It is adjacent to the new Medical Hall, and forms an integral portion of the Medical Department. In its various departments, during 1886, there were treated 8405 cases, representing almost all of the known medical, surgical and gynæcological affections. Owing to its situation within a very short distance of numerous railroads, the Hospital is pre-eminently the refuge of cases of severe injury and of acute surgery. Attendance on the Clinical Instruction given in its amphitheatres and its wards is a part of the daily duty of the students, and ample opportunities are afforded to the more advanced among them to gain a personal and practical acquaintance with Clinical Medicine, Surgery, Gynæcology and the Specialties. These subjects are taught by the several Clinical Professors.

The new wing in the University Hospital, for chronic diseases, especially of the heart and of the lungs, is completed, and thereby unusually good opportunities are afforded for the study of these important affections This wing has been erected by the liberality of Mr. Henry C. Gibson; and its hundred beds are rapidly being endowed by friends of the University. The Peter Hahn Ward, endowed by the late Dr. George B. Wood, has been opened for the admission of patients.

The resident physicians of the University Hospital are every year selected by competitive examination from among the graduating class of the University. The next examination will be held Tuesday, April 24th, 1888, at 12 M.

OTHER HOSPITALS AND HOSPITAL CLINICS.

In addition to the official clinical lectures and bedside instruction delivered at the University Hospital, medical students have the opportunity of attending clinical lectures in other Hospitals and in private classes formed for the special study of disease.

Close to the grounds of the University is the PHILADELPHIA HOSPITAL with its thousand beds. Here are delivered twice a week Clinical Lectures on Medicine, Surgery, and the Diseases of Women and Children. Lectures on Clinical Medicine and Surgery are also delivered twice a week during

Digitized by Google

the greater part of the year by the Medical Staff of the PENNSYLVANIA HOSPITAL. Instruction in Clinical Surgery and Children's Diseases is given, too, at the CHILDREN'S HOSPITAL. There are also weekly Clinics in Medicine and Surgery at the GERMAN HOSPITAL. To these institutions students are admitted without charge, except at the Pennsylvania Hospital, where a small fee is now required.

During the spring and summer, *private* classes are also formed for Clinical Instruction, for which a moderate fee is charged.

Appointments of RESIDENT PHYSICIANS, amounting to twenty-five or more, are made annually in the different Hospitals of the city. With one or two exceptions these positions are now filled by *competitive examination of candidates.*

From the preceding summary it is evident that a prolonged residence in Philadelphia must be of the utmost value to the student, by enabling him to pursue a systematic course of study and to become practically familiar with the scientific methods of investigating disease, and with the principles and results of its treatment.

THE STILLÉ, H. C. WOOD, WILLIAM PEPPER AND D. HAYES AGNEW MEDICAL SOCIETIES.

These Societies are composed of Second and Third year students. Their meetings are held once a week during the winter session for the reading and discussion of papers referring to the theory and practice of medicine and surgery.

PRIZES.

THE MEDICAL NEWS PRIZE of One Hundred Dollars will be awarded to the member of the Graduating Class of 1887–88 for the best Essay.

THE ALUMNI MEDAL is awarded by the SOCIETY OF THE ALUMNI of the Medical Department of the University to the member of the Graduating Class who attains the highest general average in examinations.

A PRIZE OF THIRTY DOLLARS is also awarded by the Demonstrator of Anatomy to the member of the Graduating Class who shall present the best record of the anomalies found in the anatomical rooms.

TWO PRIZES are awarded by the Demonstrator of Surgery for proficiency in Operating and Bandaging. The first is a copy of Agnew's Surgery, the second a pocket-case of instruments.

The names of those to whom the prizes are awarded are announced at the Annual Commencement of the Medical Department.

☞ *The address of the Secretary is Medical Department of the University of Pennsylvania, Philadelphia, Penna. His office is in* MEDICAL HALL, *where all business is transacted.*

Digitized by Google

SOCIETY OF THE ALUMNI OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

The object of this Society is to sustain and advance the interest and influence of the Medical Department by the promotion of sentiments of general brotherhood and amity among the graduates, and by aiding in all efforts to elevate the standard of medical education and to extend the progress of medical science and art.

Any graduate in good standing may become a member by forwarding to the Treasurer the sum of *one dollar;* and thereafter the *annual contribution* shall be *one dollar.*

Every member receives a copy of the proceedings of the annual meeting of the Society, and is notified of the Anniversary Reunion, which take place on Commencement Day.

It is urgently desired that as many of the Alumni of the Medical Department of the University of Pennsylvania as possible avail themselves of the opportunity to join the Society, as an increased membership will greatly strengthen the Society and thereby advance its objects.

OFFICERS FOR 1887.

President—ALFRED STILLÉ, M.D., LL.D.

Vice-Presidents—MEREDITH CLYMER, M.D.
W. S. W. RUSCHENBERGER, M.D.
THOMAS J. GALLAHER, M.D.
TRAILL GREEN, M.D.

Secretary and Treasurer—THOMAS R. NEILSON, M.D., 346 South 15th St., Philadelphia.

Chairman of Executive Committee—S. D. RISLEY, M.D., 1722 Walnut St., Philadelphia.

The Alumni Association has just published a complete Catalogue of the Graduates of the Medical Department, which may be obtained for $1, sent to Dr. Thomas R. Neilson, Secretary and Treasurer of the Society of the Alumni, Medical Department, 346 South Fifteenth Street, Philadelphia. Orders for copies should be sent at once.

Alumni are requested to send to the Secretary of the Society of the Alumni notice of change of residence or other information likely to be of service in perfecting subsequent editions.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOHN J. REESE, M.D., Professor of *Medical Jurisprudence* and *Toxicology*.
SAMUEL B. HOWELL, M.D., Professor of *Mineralogy* and *Geology*.
JOSEPH T. ROTHROCK, B.S.; M.D., Professor of *Botany*.
JOSEPH LEIDY, M.D., LL.D., Professor of *Comparative Anatomy* and *Zoölogy*.
SAMUEL G. DIXON, M.D., Professor of *Hygiene*.

SAMUEL G. DIXON, *Dean*.

MATRICULATES.

Brinkman, Leon, M.D.,	Philadelphia, Pa.
Dorland, Wm. A. N., M.D.,	do. do.
Gill, Walter Myers,	Allegheny, do.
Hatch, John Leffingwell,	Rochester, New York.
Kirby, Ellwood Robert, M.D.,	Philadelphia, Pa.
Lambert, H. Edgar, M.D.,	do. do.
Landis, Eli Barr,	Lancaster, do.
Rodgers, Robert, Jr.,	Philadelphia, do.
Stevens, Auther Albert, M.D.,	do. do.
Warwick, Hill Sloane, M.D.,	Jersey City, New Jersey.

Total, 10.

The Auxiliary Faculty of Medicine supplements the customary winter course of medical instruction by lectures on collateral branches of Science essential to the thorough education of the physician. The course is essentially post-graduate. There can be no matriculation until the student has entered upon his third year of medical study. His second year in this department should be taken in connection with the fourth year of medical instruction for which the University now provides.

The session for 1887–88 will begin on Monday, October 1st, and continue until the early part of May.

The matriculation book will be closed after November 1st, except to such students as show the Dean good reasons for longer indulgence.

Digitized by Google

FEES.

The lectures are free to the medical students, and medical graduates, of this University. Other matriculates pay fifteen dollars for each professor's course, or thirty-five dollars for all the courses. The graduation fee is ten dollars.

DEGREES.

This Faculty no longer recommends students for the Degree of Doctor of Philosophy (Ph.D.); but a graduate in Medicine of this University, or of other Medical Schools on its *ad eundem* list, who has attended two full courses of instruction in this Auxiliary Department, has presented an *original thesis* on one of the subjects taught, and has passed a satisfactory examination, will receive the Degree of Bachelor of Science (B.S.), on complying with the following conditions:

(1) When applying for examination the candidate must exhibit his medical diploma to the Dean, and show that he has paid all University dues.

(2) The thesis must be presented to the Dean, and the graduation fee be paid by the 15th day of May.

Candidates must be present at Commencement, unless excused by the Faculty.

SPECIAL STUDENTS.

The lectures and laboratories of this Department are open, also, to those not engaged in the study of Medicine. Admission may be obtained from the Dean, either to the whole course of Lectures, or to Lectures on a single branch. These students receive no degrees, though the Faculty may give certificates of attendance.

PRIZES.

(1) The GEORGE B. WOOD PRIZE, founded by the Alumni Association of the Auxiliary Department of Medicine, is bestowed annually upon the candidate who passes the best examination, and presents the best original thesis on an experimental subject, satisfactory to the Faculty.

(2) A fifty-dollar microscope will be given to the student who passes the best examination in Hygiene.

MUSEUM.

The Museum of the Auxiliary Department of Medicine contains three thousand mineral specimens systematically arranged; a collection of rocks, fossils, and casts, arranged according to their geological succession; a valu-

Digitized by Google

able philosophical apparatus; a growing collection of specimens of Comparative Anatomy and Zoölogy; chemical preparations and apparatus illustrative of Toxicology; diagrams, etc. These collections are arranged in the rooms of the Faculty.

COURSE OF STUDY.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.—Subjects of legal medicine on which the physician may be called upon to give evidence in a court of justice:—

Signs of Death; Personal identity (*identification of the living and the dead*); Feigned Diseases; Violent Deaths (*homicidal* and *suicidal*) from (a) *wounds;* (b) *hanging;* (c) *strangling;* (d) *suffocation;* (e) *drowning;* (f) *heat;* (g) *cold;* (h) *starvation;* (i) *lightning;* (k) *poisoning.*

Infanticide and criminal abortion; Signs of Pregnancy and of Delivery; Legitimacy; Rape; Survivorship.

The Jurisprudence of Insanity (*civil* and *criminal responsibility; feigned insanity; rights of the insane; plea of insanity as a bar to judicial punishment*).

The Legal Rights and Liabilities of Physicians; Medical Experts—their rights and compensations.

Life Insurance in its medico-legal relations.

Medical Malpractice.

Poisoning, with special reference to *testing;* modes of procedure in order to determine the presence of poisons in cases of homicide and suicide.

MINERALOGY.—First Year: Instruction by Lectures and Text-book study, giving leading facts and principles as a branch of general education, and also preparing for practical application to Geology. This includes crystallography, physical and chemical properties of minerals, classification and description of all the leading species, with a complete collection to illustrate these teachings. In the Laboratory the student learns blowpipe analysis to determine minerals. Use of the spectroscope is taught. The examination is both written and oral, with practical determinations.

GEOLOGY.—Second Year: Lectures and practical work. This includes lithological classification, stratification or bedding, fossiliferous and unfossiliferous rocks, origin of rocks, denuding agents, dissolved matter extracted by the agency of animals and plants, derivative rocks and their relations to the history of the globe, present positions of rocks, present interior and exterior conditions of the earth, causes of upheaval and contortion, origin of heat required for volcanic energy and metamorphism, changes of climate, mineral springs, geographical distribution of disease realms, soils in relation to malaria, drainage basins and lines, permeability of rocks as related to discharge of rivers, character of river water as depending upon chemical composition of rocks, and outlines of historical geology. The practical work in the Laboratory includes plotting from field notes, location of outcrops, construction of sections, reports on districts visited by students, description of strata, and determination of rocks and fossils.

Digitized by Google

BOTANY.—First Year: Instruction is by Lectures upon structural and physiological botany; and also as time permits, upon properties of plants. Second Year: Instruction by laboratory exercises in vegetable histology and in analytical botany. Such students as are far enough advanced can also receive instruction in methods of study and in life-histories of the lower forms of plant life.

There is an examination at the end of each year.

Under proper restriction a large herbarium is available to advanced students, for purpose of critical comparison of plants.

HYGIENE.—Sanitary science, especially in the direction of Preventive Medicine, has advanced so rapidly during the past few years, that in this brief course only the more important subjects can be treated of in detail. Particular attention is directed to the practical application of sanitary knowledge, in accordance with the standard of efficient requirement in this branch justly demanded by the Illinois and other State Boards of Health.

1. Nature, causes, mode of propagation, and prophylaxis of preventable diseases—heredity and other modifying influences which affect their development—avoidance or control of maladies by quarantine, disinfection, isolation, etc. 2. Special prophylactic measures and hygienic management of cholera, typhoid fever, small-pox, glanders, trichiniasis, and the disturbances of health produced by parasites. 3. Analysis of air; sanitary meteorology; heating and ventilation; examination of drinking water; drainage and sewerage. 4. Food and drink as conditioning *all* physical and mental manifestations of vitality; impurities, deteriorations and adulterations of food,—their effects upon the human organism,—means of detecting their existence and obviating their injurious action. 5. Chemistry of Cooking. 6. Principles of hospital construction; military, naval, school, industrial and personal hygiene.

COMPARATIVE ANATOMY AND ZOÖLOGY.—1. An outline of the classes of animals. 2. A succinct account of their anatomy and embryology. 3. Explanation of "varieties" of human anatomy, and the proper method of studying malformations. 4. A description of human parasites. 5. An account of the more important sources of those articles of the materia medica which are derived from the animal kingdom.

The principal text-books used are:—

Taylor's *Medical Jurisprudence* (American edition by Reese).
Reese's *Manual of Toxicology.*
Reese's *Medical Jurisprudence and Toxicology.*
Dana's *System of Mineralogy.*
Elderhorst's *Manual of Qualitative Blowpipe Analysis.*
Dana's *Manual of Geology.*
Ganot's *Éléments de Physique*, translated by Atkinson.
Gray's *Text-Book of Botany*, Vols. 1 and 2.
Gray's *Manual of Botany.*
Parkes' *Manual of Hygiene.*

Works of reference:—

Wharton and Stillé's *Medical Jurisprudence.*

Digitized by Google

Taylor's *Medical Jurisprudence.*
Tidy's *Legal Medicine.*
Sach's *Text-Book of Botany.*
Le Maout and Decaisne's *General System of Botany, Descriptive and Analytical.*
Cooke and Berkely on *Fungi.*
Wilson's *Manual of Hygiene.*
Buck's *Hygiene and Public Health.*
Pavy or Chambers on *Diet.*
Mivart's *Elements of Anatomy.*
Nicholson's *Manual of Zoölogy.*
Gegenbaur's *Elements of Comparative Anatomy.*
Balfour's *Comparative Embryology.*
Williams on *Chemistry of Cooking.*

Digitized by Google

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS.

RICHARD WOOD, PRESIDENT.
WM. F. NORRIS, M.D., VICE-PRESIDENT.
S. S. STRYKER, M.D., SECRETARY.
WHARTON BARKER, TREASURER.

WM. PEPPER, M.D., LL.D., PROVOST.

ON THE PART OF THE CONTRIBUTORS TO ENDOWMENT FUND.

ISAIAH V. WILLIAMSON, JOHN WANAMAKER,
SAMUEL ASHHURST, M.D., W. F. NORRIS, M.D.,
THOMAS DOLAN, GEORGE FALES BAKER, M.D.,
J. HOWARD GIBSON.

ON THE PART OF THE BOARD OF TRUSTEES.

RICHARD WOOD, G. D. BOARDMAN, D.D., LL.D.,
JAS. H. HUTCHINSON, M.D., WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.

ON THE PART OF THE FACULTY.

JOSEPH LEIDY, M.D., LL.D., JOHN ASHHURST, JR., M.D.,
THEODORE G. WORMLEY, M.D., LL.D.

ON THE PART OF THE ALUMNI.

HORACE Y. EVANS, M.D., RICHARD A. CLEEMANN, M.D.,
SAMUEL S. STRYKER, M.D.

CHAIRMEN OF STANDING COMMITTEES.

ON FINANCE: JOHN WANAMAKER.
ON PROPERTY AND REPAIRS: J. H. HUTCHINSON, M.D.
ON SUPPLIES: HORACE Y. EVANS, M.D.
ON LIBRARY AND MUSEUM: JOHN ASHHURST, JR., M.D.

Digitized by Google

The *Medical Staff* and *Officers* of the Hospital are given on pages 70, 71.

The UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between 34th and 36th Streets, and Spruce and Pine Streets, given by the City of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction in 1874. In 1882, a new wing was added through the liberality of Mr. Henry G. Gibson for patients suffering from Chronic Diseases.

The MAIN BUILDING, besides the offices and the rooms of the officers, has a large clinical Amphitheatre, which will seat six hundred students, and a smaller one for one hundred and fifty. It also has ten rooms for private patients. The wing adjoining has five wards, with a capacity of one hundred and ten patients, and four private rooms. The wing for Chronic Diseases has room for sixty-two patients in its six wards. There is therefore full accommodation for one hundred and eighty-six patients. In the basement are surgical and medical dispensaries, and nine special dispensaries for out-door patients. In connection with the Orthopædic Dispensary is a work-shop, in which braces and other appliances are made.

The hallways are well-lighted and spacious, and can be used as wards, should there be any sudden demand which the capacity of the regular wards could not meet.

The Hospital is also well adapted to purposes of teaching; a large proportion of the instruction given to the students in the Medical School is given here, as will be seen by reference to the rosters.

All cases of accident occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night. An ambulance will be sent for them, if notice is given by telephone or messenger.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is $7.00 a week; in the private rooms, of which there are fourteen, the prices range from $12.00 to $25.00 a week. The friends of the patients can be accommodated in the Hospital, under certain circumstances, but it is better for them to board in the neighborhood, where rates range from $4.50 per week upwards.

No patient with acute venereal disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon. There are special departments for mania-à-potu patients.

Digitized by Google

Visitors are admitted to see patients in the private rooms at all times.

Visitors are admitted to the wards on week-days between 2 and 4 P. M. Under no circumstances are they admitted on Sunday, except in the case of near relatives of patients whose condition is very critical.

There are elected annually from the graduating class of the Medical School three Resident Physicians, who come on duty for one year at intervals of four months.

An Annual Report of the Hospital is published, giving minute statistics of the year. Copies can be had on application to the Superintendent.

Digitized by Google

DEPARTMENT OF DENTISTRY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

CHARLES J. ESSIG, M.D., D.D.S., Professor of *Mechanical Dentistry* and *Metallurgy*.

EDWIN T. DARBY, M.D., D.D.S., Professor of *Operative Dentistry* and *Dental Histology*.

JAMES TRUMAN, D.D.S., Professor of *Dental Pathology, Therapeutics* and *Materia Medica*.—SECRETARY.

JOSEPH LEIDY, M.D., LL.D., Professor of *Anatomy*.

THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry*.

EDWARD T. REICHERT, M.D., Professor of *Physiology*.

ROBERT HUEY, D.D.S., Lecturer on *Operative Dentistry*.

LOUIS JACK, D.D.S., Lecturer on *Operative Dentistry*.

CLINICAL INSTRUCTORS.

DR. C. S. BECK,
DR. GEO. W. KLUMP,
DR. W. G. A. BONWILL,
DR. W. R. MILLARD,
DR. R. R. UNDERWOOD,
DR. E. H. NEALL,
DR. H. C. REGISTER,
DR. I. F. WARDWELL,
DR. J. A. WOODWARD,
DR. H. C. LONGNECKER.

DEMONSTRATORS.

WM. DIEHL, D.D.S., Demonstrator of *Operative Dentistry*.

J. JUDSON EDWARDS, D.D.S., Demonstrator of *Mechanical Dentistry*.

GEORGE G. MILLIKEN, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

JAMES E. LODER, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

HARRY B. McFADDEN, D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.

JOSEPH W. WHITE, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

Digitized by Google

AMBLER TEES, JR., D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.

MILTON POWEL, D.D.S., Assistant Demonstrator of *Operative Dentistry*.

R. HAMILL D. SWING, D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.

FREDERICK W. AMEND, JR., D.D.S., Assistant Demonstrator of *Mechanical Dentistry*.

JOHN MARSHALL, M.D., NAT.SC.D., Demonstrator of *Practical Chemistry*.

JOHN B. DEAVER, M.D., Demonstrator of *Anatomy*.

MATRICULATES.

SECOND YEAR.

Ascher, Hugo,	Königsberg, Germany,	S. Simon.
Ayres, Percy C.,	Philadelphia,	University.
Baker, Boyd H.,	Hughesville,	Wm. L. Winner.
Baumgardner, Ira G.,	Philadelphia,	University.
Beck, Harry M.,	Wilkes-Barre,	C. S. Beck.
Belt, J. Ferris,	Wilmington, Del.,	University.
Bower, Elmer E.,	Baumstown,	W. H. Shannon.
Bowers, George A.,	Nashua, N. H.,	Geo. Bowers.
Brown, Frederick W.,	New Haven, Conn.,	Fuller & Caroli.
Bryant, William E.,	St. Paul, Minn.,	C. E. Hale.
Burgin, Welby W.,	Richmond, Ky.,	A. Wilkes Smith.
Burke, John J.,	Wilmot,	University.
Cabedo, Gabriel C. (L.D.S.),	Gibraltar, Spain,	National Dental Hospital, London, Eng.
Calves, Antonio D.,	Havana, Cuba,	University.
Channell, William C.,	Montezuma, Ia.,	W. P. Channell.
Cogswell, Arthur W., (M.D.,)	Halifax, Nova Scotia,	A. C. Cogswell.
Cornelius, George T.,	Philadelphia,	Joseph Head.
Daboll, Louis B.,	Buffalo, N.Y.,	G. C. Daboll.
Dunwoody, J. Edward,	Philadelphia,	J. T. Lippincott.
Fenn, George L.,	Bridgeport, Conn,	University.
Fenn, Henry H.,	Bridgeport, Conn.,	L. E. Sage.
Fletcher, Charles R.,	Halifax, Nova Scotia,	Penna. College of Dental Surgery.
Fuller, Thomas B.,	Binghamton, N.Y.,	M. H. Fish.
Gardner, Peter W.,	Milwaukee, Wisc.,	W. C. Wendel.
Gibbons, R. Hornsby,	Brighton, England,	S. C. Gibbons.
Gibbs, C. Franklin,	Bridgeport, Conn.,	Gibbs & Wilcox.
Graff, Mark W.,	Richmond, Ind.,	J. W. Jay.
Hart, Frank J.,	Girard,	W. L. Battles.
Heyde, Hans von der,	Constantinople, Turkey,	Hans von der Heyde.
Hopkins, Richard S.,	Cheyenne, Wyoming Territory,	Rees Williams.
Howard, Charles P.,	Champaign, Ills.,	C. M. Shreve.
Jones, J. Benjamin,	Summit Hill,	University.

Digitized by Google

Keyes, William B. (C.D.),	Rio de Janeiro, Brazil,	Dental Dept. Medical Fac., Rio de Janeiro.
Knod, Hans Ludwig (Zahn-Arzt),	Essen, Germany,	Univ. of Leipzig and Munich.
Kuni, Harry W.,	Philadelphia,	University.
Le Fevre, Harry W.,	Hillsboro, Ohio,	J. R. Callahan.
Link, Edward G.,	Rochester, N. Y.,	Wanzer & Davis.
Lohmann, August,	Kassel, Germany,	F. Grau.
McCanna, Horace,	Atglen,	C. J. Reese.
McDaniel, W. Archie,	Birmingham, Ala.,	Eubank Brothers.
Manship, John F.,	Milton, Del.,	University.
Mayer, William J.,	New Haven, Conn.,	Nettleton & Bradley.
Meisburger, Louis, C. J.,	Buffalo, N. Y.,	O. Luce.
Miro, José Luis,	Havana, Cuba,	University.
Nuñez, Emilio,	Sagua, Cuba,	University.
O'Bourke, John M.,	Trinidad, Cuba,	University.
Paiste, James L.,	West Chester,	J. E. Harlan.
Place, Eugene H.,	Freeport, Ills.,	Kingsley, Allen & Sunderland.
Ramsden, Harry M.,	Frankford,	John Ramsden.
Rathbun, Chauncey M.,	Dunkirk, N. Y.,	B. Rathbun.
Reap, Joseph C.,	Pittston,	John McDougall.
Robinson, Will B.,	Greenfield, Ohio,	Ohio Coll. of Dental Surgery.
Rue, Samuel F.,	Hightstown, N. J.,	Geo. E. Titus.
Ruiz, Jesús,	Guayata, U. S. of Colombia,	University.
Schwarze, Paul (Zahn-Arzt),	Leipzig, Germany,	F. Hesse and W. G. A. Bonwill.
Segar, Albertus V.,	Westerly, R. I.,	Lewis & Spicer.
Smith, Charles E.,	Nashua, N. H.,	L. F. Locke.
Sullivan, George A.,	Lancaster,	University.
Tees, Louis F.,	Philadelphia,	Ambler Tees.
Tenny, Robert C.,	Eaton, N. Y.,	University.
Thompson, Lamar L,	Rochester, N. Y.,	H. S. Miller.
Van Deursen, George L.,	Paris, Ills.,	University.
Weaver, Luther M. (A.M.),	Hanover,	University.
Weinberg, Nathan,	St. John, Kan.,	C. A. & S. J. Baird.
Wheeler, Walter F.,	Spencer, Mass.,	C. P. Barton.

Students of the Second Year, 65.

FIRST YEAR.

Adams, Philip W.,	Worcester, Mass.,	J. F. Adams.
Albury, Robert W.,	Nassau, Bahamas,	University.
Ayala, Victor M.,	Matanzas, Cuba,	F. A. de Zayas.
Barner, Miles C.,	Jersey Shore,	F. B. Swisher.
Barnett, George E.,	Walla Walla, Washington Territory,	L. M. Davis.
Bruce, James A.,	Melbourne, Australia,	Heath & Kernot.
Cheney, Lewis W.,	Lee, Massachusetts,	S. K. Saunders.
Cooney, Edward J. M.,	Providence, R. I.,	G. Carrow Chance.

Digitized by Google

Cooper, Arthur, W.,	Milwaukee, Wis.,	R. G. Richter & T. Judd.
Curlis, George H.,	Pennington, N. J.,	University.
Darby, George D. B.,	Lansdowne,	Edwin T. Darby.
DeLacy, William P.,	Scranton,	W. B. Henwood.
DeWalt, J. Edward,	Freeport, Ills.,	Kingsley, Allen & Sunderland.
Diehl, Walter R.,	Pittsburgh,	Chas. E. Diehl.
Dunbar, Henry T.,	North Hartland, Vt.,	G. W. Hoffman.
Eaton, Horace E.,	Parrsboro, Nova Scotia,	University.
Essig, Norman S.,	Philadelphia,	Chas. J. Essig.
Evans, Milton H.,	Tower City,	University.
Faust, William F.,	Womelsdorf,	P. K. Filbert.
Focht, Frank D.,	Philadelphia,	University.
Fordham, J. Merritt,	Scranton,	J. L. Fordham.
Fuller, John G.,	Philadelphia,	W. L. Cave & G. G. Milliken.
Goldsmith, Samuel L. (A.B.),	Philadelphia,	W. Lewis Cave.
Gray, George R.,	Worcester Mass.	Harris & Toombs.
Grotefend, George A.,	Shasta, Cal.,	University.
Guiteras, Albert F.,	Matanzas, Cuba,	University.
Hart, Frank T.,	Pennington, N. J.,	University.
Higgs, Allan,	Nassau, Bahamas,	University.
Horgan, Cornelius F.,	Philadelphia,	University.
Jewett, Benn C.,	Waterville, N. Y.,	C. H. Bennett.
Lamson, Frank E.,	Worcester, Mass.,	University.
Lamson, William F.,	New York, N.Y.,	University.
Leake, Walter J.,	Lockport, N. Y.,	C. Watts.
Littig, Henry A.,	Davenport, Iowa,	University.
Luxemburger, George,	Scranton,	University.
Mayer, George H.,	Mauch Chunk,	J. A. Mayer.
Mills, William R.,	Lyons, N. Y.,	H. Forrester.
Mogel, Peter S.,	Bernville,	Eli Slegel.
*Nellins, George F.,	Philadelphia,	University.
*Osborne, Robert J.,	Exeter, England,	University.
Parry, Ira W.,	Utica, N. Y.,	A. Retter.
Peeso, Frederic A.,	Syracuse, N. Y.,	University.
Pierce, James F.,	New Haven, Conn.,	University.
Rees, Frank W.,	Walla Walla, Washington Territory,	L. M. Davis.
ReQua, Leroy,	Rochester, N. Y.,	J. ReQua.
Rhone, Charles E.,	Bellefonte,	J. W. Rhone.
Robinson, John Best,	Philadelphia,	University.
Root, George S.,	Johnson Creek, N.Y.,	F. W. Fisher.
Roys, Frank E.,	Bridgeport, Conn.,	L. E. Sage.
Sauers, Frederick,	Philadelphia,	W. Lewis Cave.
Stewart, Howart T.,	Clayton, Ala.,	W. B. Stewart.
Stine, Frederick M.,	Walla Walla, Washington Territory,	University.
White, Leonard,	Sumter, S. C.,	University.

* Not in attendance.

Digitized by Google

Williams, G. Frank,	Bridgeport, Conn.,	C. W. Strang.
Wix, William H.,	Wilmington, Del.,	University.
Woolsey, Charles G.,	Girard,	H. G. Keeler.
Yarnall, Joseph T.,	Lenni,	University.

Students of the First Year 57.

SPECIAL STUDENTS.

Limberg, Alexander (M.D.), St. Petersburg, Russia, University.

Students of the Second Year	65
Students of the First Year	57
Special Students	1
Total	123

The total number of new matriculates the present session, including those admitted to advanced standing, is 71.

SUMMARY.

Alabama	2	Indiana	1	Pennsylvania	38
Australia	1	Iowa	2	Rhode Island	2
Bahamas, W. I.	2	Kansas	1	Russia	1
Brazil	1	Kentucky	1	South Carolina	1
California	1	Massachusetts	5	Spain	1
Connecticut	8	Minnesota	1	Turkey	1
Cuba	6	New Hampshire	2	U. S. of Colombia	1
Delaware	3	New Jersey	3	Vermont	1
England	2	New York	16	Washington Terr.	3
Germany	4	Nova Scotia	3	Wisconsin	2
Illinois	4	Ohio	2	Wyoming Territory	1

Total 123

COURSE OF STUDY.

The Course extends over two years, and in each year there are two Sessions, the Winter and the Spring. By this arrangement, students are spared the necessity of securing a preceptor during their stay in the city; the Faculty deem attendance during the spring and summer months equivalent to private instruction. *Such attendance, however, is not to be considered in any way a substitute for the Winter Session.*

During the Winter Session the following is the arrangement of studies:

Digitized by Google

FIRST YEAR.

Hour.	Monday.	Tuesday.	Wednesday	Thursday.	Friday.	Saturday.
9 A.M.	General Chemistry.	General Chemistry.				
10 A.M.	Mechanical Clinic.			Mechanical Clinic.	Mechanical Clinic.	
11 A.M.		Chemical Laboratory.	Chemical Laboratory.			
12 M.						Dental Materia Medica.
1 P.M.		Operative Clinic.		Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.		Operative Clinic.			
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
5½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology and Therapeutics.	

The curriculum of the first year is identical for Medical and Dental students as far as Anatomy, Chemistry, and Physiology are concerned.

SECOND YEAR.

Hour.	Monday.	Tuesday.	Wednesday	Thursday.	Friday.	Saturday.
9 A.M.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.
10 A.M.						
11 A.M.						
12 M.			Univ. Hosp. Clinics.			
1 P.M.		Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.					
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.		Physiology.		Physiology.	
5½ P.M.	Mechanical Dentistry.	Operative Dentistry.	Metallurgy.	Operative Dentistry.	Dental Pathology and Therapeutics.	

In order to facilitate work in the practical departments, and to give full employment to the student, the morning hours of the first year are devoted equally to dental and chemical laboratory work.

During the second year the student has the entire forenoon of each day

Digitized by Google

for practical dental work. Ample opportunity is afforded for practice in operative and mechanical dentistry. In the latter branch the students of the Junior year are divided into sections, thus devoting the morning hours to practice in the operative and mechanical rooms.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth, their component tissues, a full description of the materials and instruments used in operative dentistry, a thorough elucidation of all dental operations, such as filling, extracting, regulating, the pathological relations of the teeth to the other parts of the system, and a minute description of all diseases related to dental surgery, or of interest to the dentist. The methods taught are demonstrated in clinics.

The instruction in MECHANICAL DENTISTRY AND DENTAL METALLURGY embraces the proper fitting up of a dental laboratory; the use of tools; the melting, refining, alloying and working of metals and alloys used by the dentist; the chemical and physical properties of materials pertaining to ceramic dentistry, their preparation, and the most approved formulas for compounding bodies and enamels for the manufacture of block teeth and continuous gum work; the history and properties of all substances used in making artificial dentures; as well as the mechanical treatment of cleft palate, including the several methods of constructing obturators for such cases, whether congenital or acquired. The lectures in this department also include every approved mechanical means of correcting irregularities of the teeth, and are amply illustrated by specimens, models, diagrams, and practical application in the laboratory, under the supervision of accomplished mechanical dentists. Special attention will be directed to the higher branches of plate work, the continuous gum process, and carving teeth.

Every student is required to furnish his own bench tools for metal and rubber work, and will be provided with a place in which they can be locked when not in use.

The lectures in CHEMISTRY embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds, and of the fundamental principles of organic chemistry, including the classification of organic compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

Digitized by Google

The course in practical chemistry in the laboratory includes exercises in chemical manipulation, the study of the chemical properties of the principal metals, and the reactions of acids and their combinations, and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds which are of interest to practitioners in all branches of medicine. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the direction of demonstrators, as well as to exhibit by formulas, on paper, all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the departments of medicine, including dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, large and well-executed models, and drawings.

The course on PHYSIOLOGY includes lectures, with demonstrations, on the entire human physiology and on physiological chemistry. The study of the physiology of each organ is preceded by a full consideration of its histology. The course is amply illustrated by appropriate diagrams, chemico-physiological experiments, and vivisections.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects taught. Dentition, and its possible pathological results, receives careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable, the character—normal and abnormal—of the oral secretions, and the direct and remote relations which the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes by which to secure a return to normal conditions are minutely detailed.

MATERIA MEDICA will be taught with special reference to the character and value of those remedies that have any bearing upon dental therapeutics.

CLINICAL INSTRUCTION.

Four hours daily (except Saturday) are spent in actual practice under the supervision of the Demonstrators. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use. In the operating room, wires are arranged to a number of the chairs for the use of electric pluggers.

INFIRMARY AND LABORATORY.

The Infirmary and Laboratory are open to the students for practice every

Digitized by Google

day during the week excepting Saturdayafternoon, this being reserved for Clinics that may be given by members of the faculty or instructors.

THE STILLÉ MEDICAL LIBRARY.

This library, founded by Professor Alfred Stillé, for the purpose of promoting scientific research and literary culture, contains upwards of six thousand bound volumes and as many unbound volumes and pamphlets. During the Winter and Spring Sessions it is open to students and graduates of the Dental Department under appropriate regulations.

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, and annually augmented, is unequaled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy, a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc., and an extensive collection of models, which are used in illustrating the course of lectures. It is open every Wednesday and Saturday from 9 A.M. to 12 M., throughout the sessions. The matriculation fee in this Department confers admission to the Museum.

SESSIONS.

The *Spring Session*, 1888, begins on Wednesday, May 2d, and ends the last of June. The work of this session is entirely practical; no lectures are delivered.

The *Introductory Session* begins on Monday, September 17th, and is free to those who enter for the Winter Session.

The *Winter Session*, 1888–89, begins on Monday, October 1st, 1888, and ends on May 1st, 1889.

EXAMINATIONS.

At the close of the first year, examinations in Chemistry and Materia Medica are held, which, if the student fail to pass, a second examination is afforded him at the beginning of the next Winter Session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty, will be admitted to the graduating class without examination, upon presentation of the required certificate.

Digitized by Google

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of practical Dentistry in the Operative and Mechanical Departments, including the regular winter's course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination will be a good English education.

Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination; all others must pass an examination in the elements of a good English education.

DEGREES.

At the close of the second year, after passing satisfactorily all examinations, the student will receive the Degree of Doctor of Dental Surgery (D.D.S.), under the following regulations:

I. The candidate must be of age and of good moral character, and must have attended two full winter sessions—the second, in this institution.

II. He must have dissected at least two parts; and have performed thoroughly and to the satisfaction of the Professor of Operative Dentistry all the usual dental operations; and must undertake at least one artificial case, and bring it completed, with the patient, to the Professor of Mechanical Dentistry, thirty days before the close of the term; and must prepare for presentation to the Professor of Mechanical Dentistry, before the 1st of April, a specimen case to be deposited in the College collection. The operations, as well as the work on the artificial case, must be performed at the College building.

III. He must be present at Commencement, unless excused by the Faculty.

TEXT-BOOKS AND WORKS OF REFERENCE.

On Operative Dentistry and Dental Histology: Harris's *Principles and Practice;* Tomes's *Dental Surgery;* Taft's *Operative Dentistry;* Tomes's *Dental Anatomy.*

On Mechanical Dentistry and Metallurgy: Richardson's *Mechanical Dentistry;* Wildman's *Instruction in Vulcanite Work;* Kingley's *Oral Deformities;* Essig's *Dental Metallurgy.*

On Anatomy: Leidy's *Elementary Treatise on Human Anatomy;* Gray's *Anatomy;* Stricker's *Manual of Histology.*

Dental Follicle: Legros and Magitot, translated by M. S. Dean.

On Chemistry: Fownes's or Wurtz's *Chemistry;* Wormley's *Micro-Chemistry of Poisons;* Muter's *Analytical Chemistry.* Mitchell's *Dental Chemistry.*

Digitized by Google

On Physiology: Foster's *Physiology* with Frey's *Compendium of Histology;* Tyson's *Cell Doctrine;* Yeo's *Physiology.*

On Materia Medica: H. C. Wood's *Therapeutics;* Geo. B. Wood's *Therapeutics;* Wood and Bache's *Dispensatory.*

On Surgery: Agnew's *Surgery;* Ashhurst's *Surgery;* Billroth's *Surgical Pathology.*

EXPENSES.

Winter Term.

Matriculation Fee,	$5 00

First Year.

Tuition Fee,	$100 00

Second Year.

Tuition Fee,	$100 00
Fee for Dissection,	10 00
Graduation Fee,	30 00
For each additional year,	100 00

The payment of the $100 Tuition Fee may be divided as follows: $50 on entering, and the balance on or before November 1st. If any part is left unpaid after this date, $10 will be added to the Tuition Fee.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

Board can be obtained in Philadelphia for $4 per week and upwards.

Further information may be obtained from

JAMES TRUMAN, *Secretary,*
3249 Chestnut Street, Philadelphia, Pa.

The subjoined reports give some conception of the character, and of the mass of work performed in the Operative and Mechanical Departments; but the amount of costly material and of careful attention necessary for the insertion of 3917 gold fillings can be appreciated only by the experienced operator.

The number of patients (4825), exhibits not only a gratifying confidence in the management of these departments, but also the value of the service to a large class of persons of limited means.

OPERATIVE DEPARTMENT.

Number of Patients	4825
Gold Fillings	3917

Digitized by Google

Tin Fillings	869
Cement "	1059
Amalgam Fillings	212
Gutta Percha "	690
Canal "	258
Pulps capped	163
" devitalized	190
" extracted	237
Artificial Crowns	60
Pulpitis	366
Treatment Pulp Canals	851
Pericementitis	131
Alveolar Abscess	159
Inflammation of Gums	115
Pyorrhœa Alveolaris	76
Irregularities Corrected	45
Salivary Calculi	266
Teeth and Roots extracted	3613
Total,	13,277

MECHANICAL DEPARTMENT.

Number of patients	512
Full cases	291
Partial "	157
Pivot teeth	126
Repairing cases	12
Regulating "	21
Total,	647

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

RUSH SHIPPEN HUIDEKOPER, M.D., Veterinarian *Alfort*, DEAN OF THE FACULTY, Professor of *Internal Pathology* and *Zoötechnics*, and *pro tempore* Professor of *Veterinary Anatomy*.

JOSEPH LEIDY, M.D., LL.D., Professor of *Zoölogy*.

JAMES TYSON, M.D., Professor of *General Pathology* and *Morbid Anatomy*.

HORATIO C. WOOD, M.D., LL.D., Professor of *Materia Medica*, *Pharmacy* and *General Therapeutics*.

THEODORE G. WORMLEY, M.D., LL.D., Professor of *Chemistry* and *Toxicology*.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.

ROBERT MEADE SMITH, M.D., Professor of *Comparative Physiology*.

WILLIAM L. ZUILL, M.D., D.V.S., Professor of *Surgical Pathology* and *Obstetrics*.

WILLIAM POWELL WILSON, M.D., Professor of *Anatomy* and *Physiology of Plants*.

DEMONSTRATORS.

HENRY F. FORMAD., M.D., Demonstrator of *Pathology* and *Morbid Anatomy*.

SIMON J. J. HARGER, V.M.D., Demonstrator of *Veterinary Anatomy*.

CHARLES WILLIAMS, V.M.D., Demonstrator of *Surgical Pathology*.

JOHN MARSHALL, M.D., NAT. SC. D. (Tübingen), Demonstrator of *Practical Chemistry*.

ALEXANDER GLASS, V.S., Demonstrator of *Therapeutics*, *Materia Medica* and *Pharmacy*.

GARRETT EDWARDS, *Farrier*, Demonstrator of *Forging* and *Horseshoeing*.

R. S. HUIDEKOPER, *Dean*,
36th and Pine Streets, Philadelphia, Pa.

Digitized by Google

MATRICULATES, 1887–88.

Third Year.

Bachman, B. Frank,	Strasburg.
Balzer, Helmuth C.,	Meriden, Conn.
Birch, William A.,	Philadelphia.
Boon, George M.,	Philadelphia.
Breisacher, Leo,	Detroit, Mich.
Felton, Howard B.,	Olney.
Formad, Robert,	Philadelphia.
Garrett, Caspar,	Lansdowne.
Gatchel, Enoch M.,	West Chester.
Hartman, Guldin R.,	Philadelphia.
Lusson, Louis Olry,	Philadelphia.
Maurise, Antoni,	Philadelphia.
Reefer, Leon. N.,	Meadville.
Ridge, William Hodgson,	Trevose, Pa.
Schreiber, Albert F.,	Philadelphia.
Tintsman, John Z.,	Philadelphia.
Werntz, William B.,	Philadelphia.

Second Year.

Baer, Benjamin S. J.,	Mount Joy.
Brimhall, Simon D.,	Minneapolis, Minn.
Earley, Thomas B.,	Philadelphia.
Flower, Richard,	Philadelphia.
Harker, George Frank,	Wrightstown, N. J.
Kilbride, Thomas J.,	Philadelphia.
Mackie, Frank H.,	Fair Hill, Md.
Magill, Chalkley H.,	Philadelphia.
Mattson, William H.,	Ward, Pa.
McNeil, James C.,	Pittsburgh.
Smith, Frank L.,	Philadelphia.
Willard, Samuel B.,	Yardley, Pa.

First Year.

Bannister, Harry,	Philadelphia.
Batten, Eugene C.,	Philadelphia.
Coate, Horace G.,	Trenton, N. J.
Cohen, Nathan A.,	Philadelphia.
Collom, William B.,	Doylestown, Pa.
Dohan, Charles A.,	Philadelphia.
Eshleman, John M.,	Faggs Manor, Pa.
Jolly, Charles Rudolph,	Philadelphia.
Jones, William H.,	Millerstown, Pa.
Kean, Thomas J.,	Lock Haven, Pa.
Landes, Edgar H.,	Philadelphia.
Larzelere, Samuel D.,	Willow Grove, Pa.
Le Fevre, Christian E.,	Lampeter, Pa.
Maher, John J.,	Philadelphia.
Massinger, Eber M.,	Chalfont, Pa.

Digitized by Google

Mathues, Samuel W.,	Ward, Pa.
Meisner, Harry A.,	Baltimore, Md.
Michener, Mayhew,	Colmar, Pa.
Millar, Harry C.,	Hatboro, Pa.
Oat, Charles F.,	West Chester, Pa.
Raynor, Thomas,	Philadelphia.
Ringel, William E.,	Camden, N. J.
Seither, Joseph B.,	Philadelphia.
Turner, John P.,	West Chester, Pa.
Worrall, Frederick H.,	Media, Pa.
Zuill, Jeremiah P.,	Bermuda, W. I.

SPECIAL STUDENTS.

Brown, Albert,	Windsor, N. J.
McFayden, John,	Chester, Pa.

STUDENTS.

Students of the Third Year	17
Students of the Second Year	12
Students of the First Year	26
Special Students	2
	57

THIS DEPARTMENT provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its courses extend from the first elements of Medicine to the latest researches in Veterinary Science, at home and abroad. At every step the student is drilled under the personal guidance of professors in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining, at every step, Theory and Practice. It is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology, problems which, owing to the lack of communication between the physician and the patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

The buildings are erected in what is to be the Botanical Garden of the University, and, with a street frontage of over 600 feet, consist of a spacious Amphitheatre, Museum, Dissecting Room, Histological and Botanical Laboratory, Hospital, with hot and cold and steam baths for horses, Blacksmith Shop with eight forges, Pharmaceutical Laboratory, etc., etc. The floors are laid in cement, with the most approved drainage. The Hospital is capable of accommodating over fifty horses, dogs and other animals.

ADMISSION.

Candidates who have received a collegiate degree, or passed the matric-

Digitized by Google

ulate examination of a recognized College, or who have a certificate covering the required subjects from a recognized Normal or High School, or a duly organized County Medical Society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania—may enter without examination.

Other candidates for admission are required: *First*, to write an essay (not exceeding a page of foolscap), which may serve as a test in orthography and grammar; *Second*, to pass an examination in Elementary Physics (Part I. of Fownes's *Chemistry*).

Graduates of recognized Medical Schools may enter the second year without examination. Graduates from recognized Veterinary Schools which require three years attendance, may enter the third year without examination. Graduates from recognized Veterinary Schools which require two years attendance, may enter the second year without examination. Students who have attended one or more sessions in a recognized Veterinary or Medical School, will be allowed credit for time, but must pass examination upon entering.

INSTRUCTION.

The Course of Instruction extends over three years, with one session from the first of October to the last of June in each year. The following are the studies:

THE FIRST YEAR:—*Chemistry; Materia Medica* and *Pharmacy; Physiology; Histology; Botany; Zoölogy; Veterinary Anatomy* and *Forging.*

SECOND YEAR:—*Medical Chemistry; Physiology*; *Therapeutics; General Pathology* and *Morbid Anatomy; Veterinary Anatomy*; *Zoölogy; Surgical Pathology*, and *Internal Pathology* and the *Contagious Diseases.*

THIRD YEAR:—*Therapeutics; General Pathology* and *Morbid Anatomy; Surgical Pathology* and *Operative Surgery; Internal Pathology* and the *Contagious Diseases; Sanitary Police; Obstetrics* and *Zoötechnics.*

In the second year the student will attend Clinics, and serve as aid in the Hospital; in the third year he will be placed in charge of sick animals, and be required to prepare Clinical Reports and make Autopsies. He will also make regular visits to breeding and dairy farms and to slaughter-houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher meat.

CHEMISTRY.

CHEMICAL LABORATORIES.—The working laboratories for Practical Chemistry are in a special laboratory building, and are under the supervision of the Professor of Chemistry and the Demonstrator, with Assistants.

Digitized by Google

Students of the first year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance in Veterinary Medicine. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his work.

Students of the second year devote four hours per week to practical work in the laboratory. The Course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and from complex mixtures.

MATERIA MEDICA AND PHARMACY.

Materia Medica and Pharmacy are taught in a series of about sixty-four lectures and practical demonstrations by the Veterinary Assistant of the Professor of Therapeutics. This course includes the study of all the drugs and preparations in the U. S. Pharmacopœia which are of use in Veterinary Medicine, with the addition of the other remedies, the use of which is adapted specially to any one class of animals studied in Veterinary Medicine (Herbivora or Carnivora.) The student is required to handle the various drugs, in order to recognize their physical characteristics, to make the ordinary pharmaceutical preparations (infusions, tinctures, extracts, powders, balls, ointments and blisters), and is instructed practically in the manual required for the administration of remedies in powder, ball or fluid form to the horse, ox, hog and carnivora.

During the second year a detail of two students serve one week in rotation in the Pharmacy of the Hospital, preparing all prescriptions used in this department.

PHYSIOLOGY.

The course in Physiology consists of lectures and demonstrations in which the chemical and physical processes and constituents of the animal body are considered, and the different functions traced from their appearance in the lowest animal forms to their highest development in the domestic animals and man. Especial attention is given to the nutritive functions in the domestic animal, rules being given for the adjustment of diet to the work required of the animal, whether in beasts of burden, milk or wool producers, or in animals destined for food purposes. The lectures are fully illustrated by experiments, diagrams and tables. In connection with

Digitized by Google

the course, the students are required to work in the Physiological Laboratory, where they study the chemical properties and general characteristics of the food stuffs, analysis of milk, the action of the digestive juices, etc.

A series of review examinations are held by the Professor, to ensure the thorough comprehension by the students of the subject matter of the lectures.

The Physiological Laboratory is fitted with the most approved instruments for physiological research, and opportunity is offered to advanced students for conducting original research under the immediate supervision of the Professor.

BOTANY.

The Botanical instruction requires five hours a week during the whole of the first year.

Two objects are kept in view. The first is to give such a general idea of the anatomy and physiology of plants, of the principles of classification and of the doctrines of evolution as are essential to every one claiming to have a scientific education. This should be gained by the course of forty lectures in which these subjects are carefully elucidated.

The second object is to train observers, as well as to teach the practical relations of forage plants, "loco plants" and noxious weeds, to the veterinary art. It cannot be too fully impressed upon the student in this department that owing to the intimate relations between agriculture and veterinary medicine, his future prosperity and usefulness may be largely determined by the ability to recognize promptly plants which are known or supposed to be injurious to our domestic animals. The so-called "loco plants" are the cause each year of an immense loss to stock raisers of the United States. Then, too, there is much to be learned and taught as to the relative nutritive values of the forage plants of every region of the country. This the future veterinarian must be prepared to do. Some grasses sold as forage can be shown to be absolutely injurious. These should be recognized. To meet this second object the student will have, during the first term, four hours drill each week in observation and description of plants. During the second term he will also have four hours each week devoted to analytical botany. The work then is done entirely in the laboratory, and to accomplish it each student is provided with a dissecting microscope, for which he receipts and for which he is responsible.

ZOÖLOGY.

General Zoölogy and Comparative Anatomy embrace the study of the animal kingdom; the organic cell and its aggregates; a short account of the tissues and their production; organs, their structure; reproduction,

Digitized by Google

general facts of embryology, metamorphosis, alternation of generation, polymorphism and heterogeny; systems of classification; the evolution theory; species and varieties; a succinct account of the various groups of animals, their anatomy, development and distribution.

Practical demonstrations are given of the characteristics of the organs in the various animal types, in order to prepare the student for original zoölogical research.

ANATOMY.

The instruction in Descriptive Anatomy extends over two entire sessions, and embraces the study of the bones, articulations, muscles, digestive tract, respiratory apparatus, urino-genital organs, organs of circulation of the blood and lymph, nervous system, organs of special sense, and embryology of the horse, the mule, the ass, the ox, sheep and goat, hog, dog, cat and poultry. Constant dissection is required. The horse is used as the type until the parts have been thoroughly learned, and the student is then given other animals, to learn the differences which exist. During the first year the dissections are made with special reference to the bones, articulations and muscles, while the second year is devoted to the blood vessels and nerves. The dissections are under the supervision of the Professor of Anatomy, aided by a Veterinary Assistant. A detail is made each week of students of the Second Year, who dissect in the laboratory of the Professor of Anatomy, preparing the pieces to be used for his lectures.

The dissecting room is unsurpassed in convenience and cleanliness. The floors are of cement, the hot and cold water facilities are ample, and the room is thoroughly lighted during the day by windows on both sides, and at night by gas over each table. Iron wagons serve as dissecting tables, with movable posts, allowing the animals to be placed in any required position.

HISTOLOGY

Is taught in connection with the chair of Anatomy. The Laboratory is fitted with the most approved apparatus for microscopic and biological research. The anatomical elements are studied from the tissues of each of the classes of domestic animals included in Veterinary Medicine, in order to allow the student to appreciate the differences of structure which have been the cause of such gross error in the work of histologists, who have confined themselves to the tissue of a limited number of animals.

FORGING.

While the veterinarian is not expected to be a blacksmith, he should at least know the manual of a craft which he is constantly called upon to direct.

Digitized by Google

At eight forges the students are instructed twice a week, in sections of sixteen.

The student is required to forge the horseshoe from the mould, and to prepare the horse's hoof, to remove the shoe and to put it on. The shoeing is first learned on the dead hoof, then the living hoof. Later, the practical work includes the forging of pathological and surgical shoes, with a course of lectures on Farriery and Pathological Shoeing.

THERAPEUTICS.

This course extending over the two sessions (of the Medical Department) is devoted specially to the physiological action of drugs.

GENERAL PATHOLOGY AND MORBID ANATOMY.

Instruction in General Pathology and Morbid Anatomy is given to the students of the second and third years. It consists of lectures: 1st, on General Pathological Anatomy, in which are treated the degenerations, atrophy, hypertrophy, inflammations and tumors; 2d, on Special Pathological Anatomy, in which is considered the morbid anatomy of each organ of the body. In addition to this the students of the Second Year are practically taught Pathological Histology in the Pathological Laboratory, and to the students of the third year are given weekly demonstrations in Microscopic Morbid Anatomy. For the latter purpose there are at hand a more than sufficient number of morbid specimens, both fresh and alcoholic.

In the final examinations the practical as well as the theoretical knowledge of the candidate is tested.

INTERNAL PATHOLOGY AND CONTAGIOUS DISEASES.

The instruction in Theory and Practice of Medicine, completed in two years, is given under the following headings:

General Pathology.

1. Origin of Veterinary Medicine, Medical Doctrines, Classes of Disease.

2. Etiology.—Effects on the various domestic animals of locality, climate, food, water, habitation, work, individual, race, sex and hereditary predisposition, temperament, constitution, exciting causes, poisons, specific causes, medical constitution, idiosyncrasy and immunity.

3. Symptomatology and Semiology.

4. Physical Diagnosis.—Percussion, ausculatation, examination of blood, and urine.

5. Diagnosis.

6. Prognosis.

7. Autopsies.

Digitized by Google

Special Pathology.

Diseases of Respiratory System.

Contagious and Zymotic Diseases.—With the laws of Sanitary Police in force in various parts of the United States and in Europe.

Diseases of the Digestive Apparatus.

" " Urino-Genital Apparatus.

" " Nervous System.

" " Circulatory System.

" " Ear.

" " Eye.

" " Skin.

Parasitic Disease and Helminths.

Surgical Pathology.

This branch of Veterinary Science is taught by a graded course of didactic lectures, and by clinical instruction, extending over a period of two years, taking in the Second and Third Year Classes.

One year is devoted to Minor Surgery, and comprises a course of about one hundred lectures. The other year, given to the study of Major Surgery, comprises about ninety lectures.

In addition to this, the Second and Third Year classes are given two hours of clinical instruction daily, from 8 to 10 A.M.

The Hospital and free clinics furnish an abundance of material for practical instruction, which is one of the special features of our school; and in no other in America is this mode of instruction as thoroughly carried out as in this school.

The senior class is required to devote one entire day of each week to Practical Operative Surgery, when the *modus operandi* of every operation likely to occur in veterinary practice is taught.

Instruction in bandaging and dressing, and the proper manner of application, is given in connection with Operative Surgery.

The lectures on Minor Surgery are comprised under the following headings:

Surgical Diagnosis.

Mode of Securing Animals.—Horse, ox, dog, etc.

Ligation of Arteries.

Closure of Wounds, Sutures, etc.

Inflammation.—Varieties and complications, abscess, suppuration, mortification, cicatrization.

Wounds.—Incised, lacerated, bruised and punctured wounds, bites, gunshot wounds, summer wounds.

Fractures.—Healing of fractures, incomplete fractures, special fracture.

Digitized by Google

DISEASES OF BONE.—Inflammmation of, bone tumors, ring bones, side bones, splints, spavin, curb, osteomalacia, osteoporosis.
DISEASES OF SYNOVIAL MEMBRANES.
" " ARTICULATIONS.
" " TEETH.
" " TESTICLES AND THEIR ENVELOPES.
" " TENDONS.
" " MUSCULAR TISSUE.
DISLOCATIONS.
DISEASES OF VEINS.—Thrombus, phlebitis.
" " LYMPHATICS.
" " WITHERS, NECK AND POLL.
SPRAINS.—Subcutaneous emphysema.
PHYSIOLOGICAL HORSESHOEING.

CLASSIFICATION OF LECTURES ON MAJOR SURGERY.

DISEASES OF THE FOOT.—Anatomy, physiology, pathology.
CORNS, fissures, keraphyllocele, keratocele, pricking, burnt sole.
QUITTOR.—Cutaneous, cartilaginous, tendinous.
STREET NAIL, acute founder, navicular disease, thrush, gangrene, necrosis, caries, purulent infection.
HERNIA.—Acute, chronic, inguinal, ventral, eventration, diaphragmatic, umbilical.
TUMORS.—Lipoma, encondroma, osteoma, odontoma, lymphadenoma, osteosarcoma, carcinomas. Inflammation of the sinus.
CASTRATION.—Normal, cryptorcia, female, other animals.
PATHOLOGICAL SHOEING.

OBSTETRICS.

A full course of instruction is given in this branch to senior students, about fifty lectures being devoted to this subject. Practical instruction will be mainly confined to demonstrations on the manikin, although, whenever possible, cases of natural labor will be used, to the best advantage for the student.

The course of instruction is classified as follows:

OBSTETRICAL ANATOMY.—Anatomy of the hard and soft parts.

ORGANS OF GENERATION.—External—internal, reproduction, fecundation, changes and development of the embryo, differences in ruminants, pig, bitch and cat, gestation, pathology of gestation, diseases of pregnant animals, accidents, normal parturition, presentations, dystokia, maternal fœtal, diseases of the fœtus, monstrosities, dystokia from malpresentation, obstetrical operations, accidents of parturition, pathology of parturition, diseases and abnormalities of the young animal.

Digitized by Google

ZOÖTECHNICS AND HYGIENE

Include the study of the origin and domestication of animals employed for profit by man, the laws of breeding and production, heredity, race characteristics and individual impressions, the effect of climate, aliment, work, and the means to be employed in the selection and handling of animals so as to derive from them the most economical benefit, whether as motors, as wool or milk producers, or as articles of food.

MUSEUM.

The Museum of this department has grown rapidly since the organization of the Veterinary Department, both through the preparations made in the dissecting room and the liberality of the Pennsylvania veterinarians. Valuable and rare specimens are constantly added to it from the animals which die in the extensive Zoological Garden of the city. In addition to a large number of anatomical and pathological veterinary specimens, there have been added during the last year skeletons of elephant, giraffe, camel, zebus, tapir, pecary, antelopes, etc.

HOSPITAL.

The Hospital offers the most extensive and complete accommodations for sick animals to be found in America.

Second and third year students are placed directly in charge of cases, are required to keep the clinical records, to administer the medicine, and are allowed, under the supervision of the Clinical Professors, to perform whatever operations regard for the safety of the animal permits. A detail of one student from each class take "guard" duty for twenty-four hours in rotation, receive the animals which enter the Hospital, give the required care at night, or when other students are absent, and perform the duties usually assigned to a "resident."

A detail from the Second Year class compound all medicines used in the Hospital.

A large number of animals from the private practice of the Professors, as also from the Dispensary practice of the department, are treated at the clinic daily, from 8 to 10 A.M., giving abundant material for clinical lectures and practical instruction.

FARRIERY.

The student removes the shoes of the animals under his charge, examines the feet and assists at the shoeing. In addition to shoeing for lameness, a large amount of ordinary shoeing is done at the forges of the Department, affording ample experience in methods demanded by different classes of horses, and by the various forms of the horse's foot.

Digitized by Google

EXAMINATIONS AND DEGREE.

Examinations are held at the close of each year, in which the student must duly pass before he is allowed to proceed to the studies of the next year. At the close of the course, and after passing a satisfactory examination, the student receives the Degree of *Veterinariæ Medicinæ Doctor* (*V.M.D.*).

FEES.

Matriculation Fee (paid once only), five dollars. Tuition Fee, annually, one hundred dollars.

HOSPITAL.

The Hospital of the VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA is supplied with every possible facility for the best handling and care of sick animals of all kinds.

Animals are received into the Hospital at any time, DAY or NIGHT.

OUT-PATIENTS and OPERATIONS from 8 to 10 A.M.

The following Rates of Board, including Medicine and Surgical Shoeing, are charged:—

Horses and Mules,	per day,	$1.00
Donkeys and Dogs,	"	.50
Cattle, Sheep, Cats, Birds, and small pet animals,	"	.25

PROFESSIONAL CHARGES, according to the nature of the case.

Animals belonging to indigent and deserving persons are treated without charge, and, when taken into the Hospital, pay board only. The owners of these animals must be known to the Veterinarian in charge, or must come recommended by one of the Veterinary Surgeons, or other responsible citizen of Philadelphia.

The animals are under the professional care of Prof. HUIDEKOPER and Prof. ZUILL, Veterinarians.

A competent Farrier is attached to the Hospital, who is prepared to do a LIMITED AMOUNT OF ORDINARY SHOEING in addition to SHOEING FOR LAMENESS; the LATTER ONLY under the direction of the Medical Staff.

CHARGES.

Ordinary Shoeing.

Full set of Shoes,	$3.50
Pair of Front Shoes,	2.50
Removal of Set of Shoes,	1.00

Digitized by Google

Pathological Shoeing.

Bar or Defy's Shoe (each), ... $2.00

Other Shoes according to nature of work required

The VETERINARY DEPARTMENT and HOSPITAL is open for inspection by visitors on Tuesday and Saturday afternoons, from two until five o'clock.

For further information, address,

RUSH SHIPPEN HUIDEKOPER,
Dean of Veterinary Department,
University of Pennsylvania.

Digitized by Google

DEPARTMENT OF BIOLOGY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOSEPH LEIDY, M.D., LL.D., Professor of *Zoölogy* and *Comparative Anatomy*, Director.
JOSEPH T. ROTHROCK, M.D., B.S., Professor of *Botany*.
HORACE JAYNE, M.D., Professor of *Vertebrate Morphology*.
JOHN A. RYDER, Ph.D., Professor of *Comparative Embryology*.
WILLIAM P. WILSON, B.S., Sc.D., Professor of *Anatomy* and *Physiology of Plants*.
CHARLES S. DOLLEY, M.D., Professor of *General Biology*.
HOBART A. HARE, M.D., Instructor in *Physiology*.
EDWIN A. KELLEY, Assistant in *Mammalian Anatomy*.
MILTON J. GREENMAN, Assistant in *General Biology*.

HORACE JAYNE, M.D., *Secretary*.

MATRICULATES, 1887–1888.

GRADUATE STUDENTS.

George Fetterolf, A.B.,	Philadelphia.
Robert S. Maison, A.B.,	Philadelphia.
Olivia Rodham,	Swarthmore, Pa.
Hill S. Warwick., M.D.,	Jersey City, N. J.

UNDERGRADUATE STUDENTS.

SECOND YEAR.

Edward Bancroft,	Philadelphia.
John A. Blouse,	York, Pa.
Charles M. Burk,	Clarksboro, N. J.
Julian H. Dewey,	Philadelphia.
John A. McIlwain,	Philadelphia.
Charles F. Nassau,	Philadelphia.
George G. Ross,	Philadelphia.
Edwin G. Whinna,	Manayunk.
Albert D. Whiting,	Pottsville, Pa.
Bernard Zweighaft,	Philadelphia.

FIRST YEAR.

Rodman Barker,	Wyncote, Pa.
Samuel H. Barker,	Wyncote, Pa.

Digitized by Google

William F. Cushing, Jr.,	Philadelphia.
Alexander H. Davisson,	Philadelphia.
John H. Girvin,	Philadelphia.
Henry S. Kiersted,	Philadelphia.
James P. Lofland,	Milford, Del.
George W. McCafferty, Jr.,	Philadelphia.
Howard Mellor,	Philadelphia.
Clara C. Miller,	Ardmore, Pa.
William S. Miller,	Philadelphia.
W. Willet B. Moon,	Fallsington, Pa.
George D. Morton,	Philadelphia.
Frank R. Packard,	Philadelphia.
Addison M. Rothrock,	West Chester, Pa.
Alfred N. Seal,	Philadelphia.
William T. Stewart,	Philadelphia.
Archibald G. Thomson,	Philadelphia.
Philip A. Trau,	Philadelphia.
G. Jason Walters,	Philadelphia.
George E. Yeomans,	Philadelphia.

The aim of this Department is:

1. To provide a course of instruction in Biology for students of both sexes who are preparing to study medicine, or who desire systematic training in this subject.

2. To conduct the Biological studies of students in the College Department.

3. To afford advanced instruction to graduates who are candidates for the Degree of Doctor of Philosophy.

4. To encourage original research in Biology by offering facilities to scientists engaged in investigation, and by giving aid and instruction to advanced students prosecuting special work.

The new LABORATORY building, erected for the use of this Department, contains a lecture-room, four large laboratories for undergraduate Biological work, rooms for the Zoölogical and Botanical collections and libraries, laboratories for advanced and special work in Botany, Zoölogy, Histology, Embryology and Physiology, besides private laboratories for the use of the instructors, and rooms for Photography, with ample space for the Aquaria, Animals and storage.

Proper and abundant MATERIAL is furnished to students engaged in special work. A supply of the ordinary forms used in the practical laboratory exercises is kept, as far as possible, in the building and greenhouse.

An excellent COLLECTION of skeletons, typical forms, and dissected preparations is formed, and a fine Herbarium, containing about forty-five thousand specimens, is deposited in the building.

A good working LIBRARY, containing important Text-books and complete sets of many valuable Journals, has been provided. The large public libra-

Digitized by Google

ries of the city are, under regulations, open to students. The Academy of Natural Sciences, with its rich museum and large library, the most complete in Biology in the country, is accessible to students without charge.

1. GENERAL COURSE IN BIOLOGY.

This course forms an important branch of modern general culture, and also furnishes a peculiarly appropriate and valuable preparation for the study of medicine. With it may be combined, without extra charge, such studies in the College Department (the Languages, Chemistry, Physics, Mathematics, Drawing, etc.), as the student, with the advice of the Secretary of the Biological Faculty, may select. A liberal course of study may be thus arranged to suit individual requirements.

The course extends through two years of two terms each, and is constituted as follows:—

FIRST YEAR.

GENERAL BIOLOGY.—1. Lectures on the General Principles of Biology. Systematic Zoölogy. Dr. Leidy. (1*)

2. Laboratory Course. Dolley's *Syllabus*. Dr. Dolley and Mr. Greenman. (8)

MAMMALIAN ANATOMY.—1. Lectures on Descriptive Anatomy. Dr. Jayne. (2)

2. Laboratory Course (dissection). Mivart's *The Cat*. Dr. Jayne and Mr. Kelley. (8)

BOTANY.—1. Structural and Systematic Botany. (Lectures). Dr. Rothrock. (1)

2. Elementary Laboratory Course. Gray's *Text-book* and *Manual*. Dr. Wilson and Dr. Rothrock. (4)

SECOND YEAR.

SYSTEMATIC ZOÖLOGY.—The structure, classification and distribution of animals. (Lectures). Dr. Leidy. (1)

ANIMAL MORPHOLOGY.—Advanced laboratory course. Dr. Jayne and Mr. Kelley. (4)

HISTOLOGY.—Lectures and laboratory exercises on Microscopic Anatomy. Schäfer's *Essentials of Histology*. First term only. Dr. Ryder. (8)

EMBRYOLOGY.—Lectures and laboratory exercises on the development of the chick and rabbit. Foster and Balfour's *Elementary Embryology*. Second term only. Dr. Ryder. (8)

PHYSIOLOGY.—The elements of Mammalian Physiology. (Lectures and demonstrations). Dr. Hare. (2)

* The numerals indicate number of hours of *instruction* per week.

Digitized by Google

BOTANY.—1. Advanced Structural Botany. (Practical exercises). First term only. Dr. Wilson. (6)

2. (*a*) Economic Botany. (Practical exercises). First term only. Dr. Rothrock. (6); or, (*b*) Physiological Botany. (Practical exercises). Second term only. Dr. Wilson. (6)

The instruction in General Biology is in the form of lectures accompanied by practical laboratory exercises, and comprises the study of the structure, functions and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena manifested in the different forms of living matter, before beginning the special study of either Botany or Zoölogy. The series studied are: (1) Amoeba, Paramæcium, Vorticella, Bacterium, Yeast-plant and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Braken-fern and Bean-plant as exhibiting the structure and activities of Plants; (3) These compared with Sponge, Hydra, Starfish, Earthworm, Leech, Cyclops, Crayfish, Grasshopper, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin and Pigeon, as Animals.

The courses in Mammalian Anatomy consist of lectures and practical work. The lectures include a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy, and are well illustrated by preparations, models, diagrams, etc. The laboratory course embraces the careful dissection of the Cat.

The work in Botany, during the *First Year*, consists in the study of the microscopic structure of Plants, followed by practical exercises in determining a selected series of forms.

In the first term of the second year, the entire class studies the microscopic structure of tissues and organs. In the second term an election is allowed between Economic Botany and Physiological Botany. The work in the first course consists of practical exercises in Forestry, adulteration of foods and drugs, medicinal plants, etc.; in the second course the life history of plants is carefully followed.

The lectures on Systematic Zoölogy begin in the first year and continue through the second. They embrace the structure, classification and distribution of Animals, one year being devoted to the study of the Invertebrates, the next to the Vertebrates.

The laboratory course in Animal Morphology consists in the dissection of additional types, of series of organs, or special parts chosen by the instructor.

Histology is taught, during the first term in the second year, mainly by practical work with the microscope. The structure of animal tissues and organs and the methods of examining and preparing microscopic pecimens are horoughly studied.

Digitized by Google

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Principles of Embryology, with laboratory exercises in the preparation and study of the principal stages of development of the Chick and Rabbit.

The instruction in the elements of Human and Comparative Physiology embraces the study of the phenomena of nutrition, of food-stuffs and digestion; circulation; respiration; reproduction; muscular action, including locomotion, speech, etc.; and the functional activity of nerve and brain.

2. COURSE FOR STUDENTS IN THE COLLEGE DEPARTMENT.

Instruction in Biology forms a part of several courses in the College Department. For details of these courses, conditions of admission, examinations and degrees, see pp. 56–60, 155, 156.

3. INSTRUCTION FOR GRADUATE STUDENTS.

Students in the Department of Philosophy, who have selected Botany or Zoölogy as the main subject in their course for the Degree of Doctor of Philosophy, and who have had the requisite training, will, on entering, begin original investigation for the required graduation thesis. If not sufficiently prepared for this work, or if Botany or Zoölogy, or both, have been selected as subordinate studies, the students are advised to take the General Course in Biology, or such portions of it as may be deemed necessary. The conditions of entrance, fees, examinations and degrees are set forth in the General Catalogue, under Department of Philosophy.

4. INVESTIGATION AND ADVANCED INSTRUCTION.

Scientists engaged in the investigation of any subject in Biology can be accommodated in the laboratory by permission of the Faculty. A moderate fee will be charged for the use of the rooms and apparatus, and for attendance. Instruction of advanced students and of those engaged in special work is given by special lectures and by laboratory exercises under the personal direction of the professors. Meetings of the instructors and advanced students are held frequently for the discussion of recent discoveries in the various branches of Biology.

PRIZES.

Two Prizes, one of twenty-five dollars and one of fifteen dollars, will be awarded to students of the first year for the best dissected preparations illustrating the anatomy of the cat.

Digitized by Google

FEES.

All students pay, on entering, a matriculation fee of five dollars, and deposit each year five dollars to cover breakage in the laboratories. Any balance remaining is returned.

The Fee for tuition in the full course is one hundred and fifty dollars a year, payable in two instalments, on October 1st and February 1st. The fees for partial courses, payable in advance, are as follows: For each course of lectures fifteen dollars, for the Courses in General Biology and Mammalian Anatomy, seventy-five dollars each, for the Courses in Systematic Botany, Medical Botany, Vegetal Morphology, Vegetal Physiology, Animal Morphology, Histology, Embryology and Physiology, thirty dollars each.

A fee of ten dollars is charged to each student receiving a certificate on completion of the full course.

There are no extra charges for material used in the practical classes, or for the use of instruments or reagents.

ADMISSIONS, EXAMINATIONS AND DEGREES.

The next session will begin October 1st, 1888, at 10 A.M.

Candidates for admission to the general course must show that they are able to profit by the instruction.

Students who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the Department.

Examinations are held at the close of each college year. The student who has completed the full course in Biology, and has passed satisfactory examinations, is granted a Certificate which admits him to the Medical Department without examination, and enables him to pursue a Medical Course somewhat different from that laid down in the Catalogue, since he may pass his examinations in Anatomy and Physiology at the end of his first year, and if he has united the study of Chemistry with his Biological Course and passed satisfactory examinations, he may omit the General Chemistry of the first year and take up Medical Chemistry and pass at the end of the year. He may also omit the Biological and Histological work of the first year.

No degrees are given solely for study in this Department; but Biological students in the Department of Philosophy receive the degree of Ph.D., subject to the conditions imposed by that Department.

For further information respecting this Department, address Dr. Horace Jayne, Secretary of the Faculty, Biological Laboratory, Pine and 37th Sts., Philadelphia.

Digitized by Google

DEPARTMENT OF LAW.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

P. PEMBERTON MORRIS, A.M., LL.D., Emeritus Professor of *Practice Pleading*, and *Evidence at Law and in Equity*.

HON. J. I. CLARK HARE, LL.D., Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, and *Commercial Law*.

JAMES PARSONS, A.M., Professor of the Law of *Personal Relations* and *Personal Property*.

GEORGE TUCKER BISPHAM, A.M., Professor of *Equity Jurisprudence*.

C. STUART PATTERSON, A.M., Professor of the *Law of Real Estate* and *Conveyancing*.

A. SYDNEY BIDDLE, A.M., Professor of *Practice*, *Pleading* and *Evidence at Law* and *Criminal Law*.

GEORGE TUCKER BISPHAM, *Dean of the Law Faculty*, 502 Walnut Street, Philadelphia.

C. STUART PATTERSON, *Secretary and Treasurer of the Law Faculty* 38 South Third Street, Philadelphia.

MATRICULATES.

SENIOR CLASS.

Bedford, J. Claude,	Lost Creek,	Kaercher & Heebner.
Bethell, J. Uhle,	Philadelphia,	H. A. L. Pyle.
Bourgeois, Anderson,	Estelville, N. J.,	Leaming & Black.
Bourgeois, George A., Jr.,	Mauricetown, N. J.,	Leaming & Black.
Bright, O. Percy,	Philadelphia,	Walton Penniwill.
Brooks, T. Fernley,	Philadelphia,	A. J. Maloney.
Bullitt, James F.,	Philadelphia,	Jno. C. Bullitt.
Carlile, W. Wilson,	Philadelphia,	R. E. Shapley.
Cassel, John R.,	Cedars, Pa.,	Jas. H. Wolfe.
Cassidy, H. Gilbert,	Philadelphia,	B. H. Brewster.
Coles, Franklin A.,	Philadelphia,	Robt. Hinckley.
Conrade, David Howard,	Philadelphia,	Geo. McGowan.
Cooper, A. Morton,	Philadelphia,	Alfred Moore.
Dickson, Franklin Strawn,	Philadelphia,	University.
Dohan, Joseph McG.,	Philadelphia,	Crawford & Dallas.
Evans, F. H.,	Philadelphia,	E. O. Michener.

Digitized by Google

Felton, C. C.,	Thurlow, Pa.,	MacVeagh & Bispham.
Galbraith, Davenport,	Erie, Pa.,	W. S. Lane.
Gallager, Francis G.,	Philadelphia,	R. H. Hinckley.
Charles W. Glaser,	Philadelphia,	Jos. R. Rhoads.
Goepp, Phillip Henry,	Philadelphia,	James Parsons.
Gosh, Christian,	Philadelphia,	Hall & Lowry.
Green, Harry,	Philadelphia,	Samuel F. Flood.
Gummey, Charles F., Jr.,	Philadelphia,	Jno. G. Johnson.
Horwitz, George Q.,	Philadelphia,	Samuel Wakeling.
Jacobs, Geo. W., Jr.,	Glenloch,	A. S. Ashbridge, Jr.
Littleton, Wm., G.,	Philadelphia,	W. E. Littleton.
Lodge, R. G.,	Philadelphia,	Maxwell Stevenson.
McCaffrey, H. S.,	Philadelphia,	B. H. Brewster.
McCann, David S.,	Pittsburgh, Pa.,	Kennedy & Doty.
McDevitt, Henry C.,	Philadelphia,	Eugene S. Daly.
McPherson, Jno. Bruce,	Gettysburg, Pa.,	MacVeagh & Bispham.
Mayer, Clinton O.,	Philadelphia,	W. W. Carr.
Morrell, Edw. DeV.,	Philadelphia,	Jno. G. Johnson.
Mossell, Aaron A.,	Lockport, N. Y.,	University.
Myers, Geo. DeB,	Philadelphia,	Leonard Myers.
Norris, Isaac, 3rd.,	Philadelphia,	Francis T. Chambers.
Patterson, Henry L.,	Philadelphia,	A. M. Burton.
Pierce, W. Grant,	West Chester,	Biddle & Ward.
Robb, Henry B.,	Philadelphia,	W. W. Porter.
Rommel, J. Martin,	Philadelphia,	Jas. M. West.
Rumsey, Horace M.,	Philadelphia,	F. C. Brewster.
Sheive, C. S.,	Norristown,	H. K. Weand.
Smith, Alfred P.,	Philadelphia,	MacVeagh & Bispham.
Smith, G. L.,	Philadelphia,	W. H. Smith.
Smith, Henry Austie,	Philadelphia,	MacVeagh & Bispham.
Smith, H. Forrest,	Philadelphia,	Robert J. Williams.
Smith, Wm. L.,	Philadelphia,	Wm. L. Nevin.
Smith, W. Wharton,	Germantown,	MacVeagh & Bispham.
Stackhouse, J. Burton,	Philadelphia,	
Stevick, Guy LeR.,	Carlisle,	J. M. & W. P. Gest.
Stitzell, Harry F.,	Brownsville,	Jas. Parsons.
Stockley, Frank B.,	Philadelphia,	W. L. C. Biddle.
Stoughton, A. B.,	Philadelphia,	Morgan & Lewis.
Tack, Theo. A.,	Philadelphia,	W. W. Wiltbank.
Taylor, George Herbert,	Philadelphia,	Leaming, Black & Rhoads.
Taylor, G. Morrison,	Philadelphia,	C. Oscar Beasley.
Thomson, William G.,	Philadelphia,	Jno. G. Johnson.
Vaux, George, Jr.,	Philadelphia,	P. Pemberton Morris.
Wadsworth, Ed. D.,	Philadelphia,	MacVeagh & Bispham.
Waldron, H. S.,	Philadelphia,	Sharp & Alleman.
Wooters, William W.,	Philadelphia,	Furth & Singer.
Worman, George W.,	Frenchtown, N. J.,	S. S. Hollingsworth.
Wray, Henry Russell,	Philadelphia,	Jno. M. Strong.

JUNIOR CLASS.

Adler, F. C.,	Philadelphia,	J. W. Williams.
Allen, W. H.,	Warren, Pa.,	University.

Digitized by Google

Amram, David W.,	Philadelphia,	C. Stuart Patterson.
Anderson, Forrest M.,	Philadelphia,	J. Sergeant Price.
Arnold, Arthur S.,	Philadelphia,	Mayer Sulzberger.
Ashhurst, Frazer,	Philadelphia,	R. L. Ashhurst.
Beale, Geo. W.,	Scranton, Pa.,	John Scollay.
Bechtel, Clifton R.,	Philadelphia,	University.
Beebe, Stacey Bancroft,	Coshocton, O.,	Biddle & Ward.
Bennett, Wm. M.,	Philadelphia,	Pease & Yerger.
Berkheiser, George H.,	Philadelphia,	Robert J. Williams.
Bierer, Irving W.,	LaTrobe, Pa.,	Pattison & Stenger.
Bruner, Meylert,	Muncy, Pa.,	University.
Buckley, Walter E.,		
Byrne, Wm. Michael,	Wilmington, Del.,	University.
Campbell, Malcolm,	Philadelphia,	Edw. S. Campbell.
Cheyney, Horace L.,	Cheyney, Pa.,	University.
Colesberry, A. R.,	Philadelphia,	A. P. Colesberry.
Coll, Edw. J.,	Philadelphia,	Jas. H. Heverin.
Cope, Porter F.,	Philadelphia,	MacVeagh & Bispham.
Daix, Augustus Felix, Jr.,	Philadelphia,	J. Warren Coulston.
Dolan, T. J.,	Philadelphia,	R. L. Ashhurst.
Dove, John S., Jr.,	Philadelphia,	Jas. M. West.
Dudley, Wm. Elliot,	Frankford,	University.
Durbin, Horace G.,	Lukens, Pa.,	University.
Durham, John G.,	Philadelphia,	University.
Embery, William,	Philadelphia,	University.
Evans, Chas. B.,	Newark, Del.,	George Gray.
Fahy, Jos., R.,	Philadelphia,	Thos. A. Fahy.
Flood, Chas. W.,	Philadelphia,	S. F. Flood.
Gates, Jay,	Philadelphia,	Morgan & Lewis.
Genther, J. Oscar,	Philadelphia,	Sloan & Linde.
Graham, Fredk. Wilson,	Philadelphia,	R. L. Ashhurst.
Hawkins, F. K.,	Philadelphia,	Jas. C. Stillwell.
Hillman, Geo. B.,	Wilkesbarre, Pa.,	MacVeagh & Bispham.
Horton, Nathan C.,	Hunts Mills, N. J.,	A. W. Horton.
Howell, Thos. P.,	Philadelphia,	N. DuBois Miller.
Ingram, Orrin M.,	Philadelphia,	Jas. T. Comly.
Iszard, S. Stanger,	Glassborough, N.J.,	C. Stuart Pattterson.
Johnson, Alfred G.,	Philadelphia,	Henry K. Boyer.
Kane, Francis F.,	Philadelphia,	Geo. Tucker Bispham.
Kintzing, S. Carman,	Huntingdon Valley,	T. A. Sobernheimer.
Knaus, Frederick J.,	Philadelphia,	Theodore Barrett.
Knipe, Irvin P.,	Norristown,	Irving P. Wagner.
Lauer, Alex. D.,	Philadelphia,	Jas. S. Williams.
Lavis, David,	Philadelphia,	Wm. F. Harrity.
Laws, Francis S.,	Philadelphia,	Francis S. Cantrell.
Lenhart, Harry,	Philadelphia,	Walter E. Rex.
Levin, J. S.,	Philadelphia,	S. B. Huey.
Lloyd, J. Henry,	Philadelphia,	MacVeagh & Bispham.
Lukens, Edwin Fell,	Philadelphia,	John C. Grady.
McLean, H. B.,	Philadelphia,	Jones, Carson & Phillipps.
McCance, F. K.,	Pittsburgh,	C. Stuart Patterson.
McCarthy, Henry A.,	Philadelphia,	Lister & Keene.
McKim, Maurice,	Philadelphia,	University.

Digitized by Google

Magee, Christopher, Jr.,	Pittsburgh,	Crawford & Dallas.
Montgomery, Wm. Morgan,	Philadelphia,	E. Clinton Rhodes.
Murray, Jos. Edward,	Philadelphia,	Biddle & Ward.
Nelson, Hicester, H.,	Philadelphia,	John Scollay.
Newitt, Harvey K., Jr.,	Philadelphia,	University.
Pepper, Geo. Wharton,	Philadelphia,	Biddle & Ward.
Raymond, James B.,	West Chester,	University.
Rhoads, J. Snowdon,	Marple,	Wm. Knight Shyrock.
Rhodes, Frank B.,	Media, Pa.,	Howard & Smedley.
Sawyer, J. B.,	Pittsburgh,	Biddle & Ward.
Savre, B. F.,	Philadelphia,	C. Stuart Patterson.
Scott, Alex. H.,	Philadelphia,	MacVeagh & Bispham.
Sellers, Edwin J.,	Philadelphia,	David W. Sellers.
Shendel, J. Martin,	Philadelphia,	B. H. Brewster.
Shoyer, Fredk. J.,	Camden, N. J.,	John S. McKinlay.
Simmons, J. W.,	Philadelphia,	University.
Sinnott, Jos. E.,	Philadelphia,	MacVeagh & Bispham.
Speckman, J. W.,	Philadelphia,	Martin H. Stutzbach.
Thompson, D. J.,		University.
Tucker, Miles,	Philadelphia,	
Wiener, Henry Jr.,	Philadelphia,	University.
Wright, Samuel Megargee,	Philadelphia,	D. W. Sellers.
Ziegler, I. E.,	Kulpsville, Pa.,	F. C. Brewster.

SPECIAL STUDENTS.

Brinton, George,	Philadelphia.
Chase, Philip P.,	Philadelphia.
Fox, Frederick S.,	Philadelphia.
Kolb, Lewis J.,	Philadelphia.
MacIntosh, W. B.,	Philadelphia.
Smith, Fredk. Wm.,	Philadelphia.
Warner, W. Miskey,	Philadelphia.

SUMMARY.

Seniors,	64
Juniors,	78
Special,	7
Total,	149

COURSE OF STUDY.

Students may matriculate in this Department at any stage of their professional preparation. No entrance examination is required.

The course occupies two years. Each year is divided into two terms, the first beginning on the first of October, the second on the first of February. Each term continues four months. The course is so arranged that a student entering at the beginning of any October term will complete his studies in two years.

Digitized by Google

SESSION OF 1888–89.

OCTOBER TERM.	FEBRUARY TERM.
Equity Jurisprudence.	Equity Jurisprudence.
Practice and Pleading at Law.	Practice and Pleading at Law.
Constitutional Law, Insurance.	Suretyship and Guaranty.
Real Estate.	Conveyancing.
Domestic Relations; Legacies.	Executors and Administrators.

SESSION OF 1889–90.

OCTOBER TERM.	FEBRUARY TERM.
Evidence at Law.	Evidence at Law.
Contracts, Bills of Exchange and Promissory Notes; Bills of Lading.	Conflict of Laws, Criminal Law.
Equity Jurisprudence.	Equity Jurisprudence.
Agency, Partnership.	Corporations, Bailment, Insurance.
Real Estate.	Real Estate.

The lectures upon Equity Jurisprudence include Practice, Pleading and Evidence in Equity, and cover the course of two years. The lectures upon the Law of Real Estate include Conveyancing, and likewise cover the course of two years.

Instruction is given by lectures, and by books and portions of books upon the subjects of the lectures, which are recommended by the Professors. The students are frequently and carefully examined.

Moot Courts are held, at which questions, prepared by the Professors, are argued. These Courts meet once a week during each term; and an evening is assigned to each case, so that a continuous discussion can be had of the points raised for argument. The Law Academy of Philadelphia, also, an institution of long standing, to which not only students, but many practicing lawyers belong, gives opportunity for debate and argument that has been found of the greatest practical advantage.

The Supreme Court of Pennsylvania, the County Courts and the Federal Courts are in session in Philadelphia during a great part of the year; so that students can have ample facilities for observing judicial proceedings.

FEES.

The Tuition Fee for the full course is fifty dollars a term. Each Professor will issue tickets for his own lectures to students who do not desire to attend the full course, and will fix the fee at his own discretion. Students who take the full course pay, also, a matriculation fee of five dollars. No other charges are made.

Digitized by Google

Students who have received the Degree of Bachelor of Laws from this University may attend all lectures free of charge.

The students of this Department are also permitted to attend the lectures given in the other Departments free of charge. Some of these, especially the lectures on *English History* and *Literature*, *Rhetoric*, *Intellectual and Moral Philosophy* and *Social Science*, are of value to the lawyer, and an opportunity is thus offered to those whose previous training has been to some extent limited to make up the deficiency.

The law students have the free use of the University Library, under the usual regulations.

The Library of the Law Association of Philadelphia (one of the largest in the country) is also open to students of Law in the University for a fee of three dollars per annum, under proper regulations.

EXAMINATIONS AND DEGREES.

The following is the statute of the University which fixes the qualifications of candidates for graduation:—

"In order to obtain the Degree of the Bachelor of Laws, there shall be required of every candidate—

"1. That he shall have attended upon the full course of instruction (both Lectures and Examinations) given in the Law Department, except the Lectures on Medical Jurisprudence.

"2. He shall have prepared and submitted to the Faculty, at some time to be fixed by them, an essay, composed by himself, on some legal subject, sufficient in merit to satisfy the Faculty of his fitness to receive the Degree.

"3. He shall have passed an examination at the end of each session upon the subjects of study during that session. The examination shall be conducted by the Faculty, either orally or in writing, as they may determine, in the presence of such of the members of the committee on the said Law Department belonging to this Board as may choose to attend. And the members of the Board of Examiners appointed by the Courts of Philadelphia may be present at the examination if they desire to do so."

The Essay required from each candidate must be handed to the Secretary of the Faculty by the 15th of February.

Errors in spelling or grammar, or other evidence of the want of a good English education, will preclude a candidate from receiving a degree.

The examinations required by the statute are both written and oral, and are held during the last week in May. The questions used at the written examination in May, 1887, will be found on a subsequent page.

Students are not admitted to advanced standing. Actual attendance on the full course of two years is required for graduation.

Students who have attended the lectures of any of the Professors, without taking a full course, may receive certificates of proficiency.

Digitized by Google

PRIZES.

The Alumni of this Department have established two prizes, one of seventy-five dollars, called the SHARSWOOD PRIZE, and one of fifty dollars, called the MEREDITH PRIZE, to be competed for by the Graduating Class for the best and the second best graduation essay. They are awarded annually by the Faculty.

A Faculty prize of fifty dollars is given annually to the student in either class who passes the best written examination with all the Professors, the answers to the questions proposed to be completed within a limited time.

ADMISSION TO THE BAR.

Graduates of this Department having complied with the Rules of Court are admitted to practice in the Courts of Common Pleas and Orphans' Court of Philadelphia, in accordance with the following rule adopted by those courts in June, 1875—

"Any citizen of the United States, of full age, who shall have been graduated Bachelor of Laws by the University of Pennsylvania, after the course of study required in the University, may be admitted to practice as an attorney of this court, if he shall have complied with the rule now in force as to the preliminary examination and been registered for one year in the Prothonotary's office as a student of law in said University by the Dean of the Law Faculty thereof."

The preliminary examination referred to in this rule is conducted by the Board of Examiners appointed by the courts of Philadelphia County, and embraces all the branches of a good English education. No person can be registered as a student of law without passing this examination.

The lectures of the course are delivered in the University Building, West Philadelphia, on the days and at the hours stated, as follows:—

Mondays, 4.00 to 5.00, PROFESSOR PARSONS.
" 5.00 to 6.00, PROFESSOR BISPHAM.
Tuesdays, 4.30 to 5.30, PROFESSOR BIDDLE.
Wednesdays, 4.00 to 5.00, PROFESSOR BISPHAM.
" 5.00 to 6.00, PROFESSOR BIDDLE.
Thursdays, 4.00 to 5.00, PROFESSOR PARSONS.
" 5.00 to 6.00 PROFESSOR HARE.
Fridays, 4.00 to 5.30, PROFESSOR PATTERSON.

The introductory lecture of the course of 1887–88 was delivered in the chapel of the University on Monday, 3d October, 1887, at 4.30 o'clock P.M., by George F. Baer, Esq., of Reading, Pennsylvania.

The first lecture of the regular course will be delivered on Monday, 1st October, 1888, at 4.30 o'clock.

Application for admission to the classes should be made to Professor C.

Digitized by Google

Stuart Patterson, Secretary and Treasurer of the Faculty of Law, at his office, No. 38 South Third Street, Philadelphia.

For information as to the post-graduate course, application should be made to Professor James Parsons, No. 1430 South Penn Square, Philadelphia.

EXAMINATION QUESTIONS, MAY, 1887.

Professor Hare.

1. Who are the parties to the Constitution, historically and according to the preamble?

2. Have the United States power to coerce a State, and by what means?

3. Are the powers of the government of the United States limited, or is it limited as to its powers?

4. State the doctrine of implied powers and its limitations.

5. Does the prohibition of laws impairing the obligation of contracts apply to the government of the United States, and how far may that government impair contractual rights?

6. What contracts are within the prohibition?

7. Is the charter of a municipal corporation such a contract, and what is the rule as to the contracts of municipalities?

8. What are deprivations within the clause that no person shall be deprived of life, liberty or property without due process of law?

9. Can a monopoly be created consistently with this clause, and for what ends?

10. In what ways may a case be brought before the Federal courts?

Professor Parsons.

State in reply to each question the reason for your answer.

1. What is the rule of liability for torts by a married woman, and by an infant?

2. Is non-residence a disqualification for appointment as an administrator?

3. If a bequest is made to the issue of a legatee, if he leaves any, what interest passes?

4. What are legal investments in Pennsylvania?

5. When is a general legacy adeemed?

6. Why could a testator direct that advancements made by him, and entered in his books, should satisfy a legacy to a child?

7. Could a foreign administrator sue in Pennsylvania the maker of a note held by the intestate, or endorse it and enable the holder to sue here?

8. Has the Orphans' Court jurisdiction over a partnership account by reason of the decedent's being a partner?

Digitized by Google

9. What class of distributees, if any, takes by representation when next in degree?

10. In what sense is the interest of a creditor in decedent's land a lien?

PROFESSOR BISPHAM.

Practice and Pleading at Law.

1. What is Blackstone's classification of injuries to real property?

2. What remedies are there in this State for the injury resulting from the non-payment of ground rent?

3. Can a citizen of New York sue a citizen of Virginia in the Circuit Court of the United States sitting in the Eastern District of Pennsylvania, if the defendant is found within said district?

4. Explain the difference between Trespass and Trespass on the Case, and state the leading case on the subject.

5. In what cases can a writ of *capias ad respondendum* be used to begin an action in Pennsylvania?

6. What is the effect of a plea in abatement?

7. Explain what is meant by a plea *puis darreign continuance.*

8. Give the three rules of Stephen for the production of an issue.

9. What kind of action would you bring upon a mortgage in this State? Describe briefly the course of such an action.

10. In what cases is a *levari facias* writ of execution?

MR. RALSTON.

[*Vice* Professor Mitchell.]

Real Estate.

1. What is a license? How may it become irrevocable?

2. What is a way of necessity?

3. What is the difference between a contingent remainder and an executory devise?

4. If, at the present day, an estate be granted to A for life, remainder to the heirs of his body, what estate would A take, and why?

5. Explain the different methods of computing consanguinity. Which has been adopted in Pennsylvania?

6. If a man dies, leaving to survive him a widow and three nephews, two being the children of one deceased brother, and one the child of another deceased brother, how would his estate, real and personal, be distributed?

7. What is a deed? Upon what theory does a deed of bargain and sale operate to convey title?

8. What is the effect of a condition in restraint of alienation in a fee simple deed.

9. What is the difference between a covenant for general warranty and a covenant for special warranty?

10. How may an illegitimate child be legitimated?

Digitized by Google

DEPARTMENT OF PHILOSOPHY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
E. OTIS KENDALL, LL.D., DEAN, and Professor of *Mathematics*.
JOSEPH LEIDY, M.D., LL.D., Professor of *Zoölogy*.
J. PETER LESLEY, LL.D., Emeritus Professor of *Geology*.
REV. ROBERT E. THOMPSON, A.M., Professor of *History*.
FREDERICK A. GENTH, PH.D., Professor of *Inorganic Chemistry*.
SAMUEL B. HOWELL, M.D., Assistant Professor of *Geology*.
GEORGE F. BARKER, M.D., PH.B., Professor of *Physics*.
JAMES PARSONS, A.M., Professor of *Law*.
GEORGE A. KŒNIG, PH.D., Professor of *Mineralogy*.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of *Botany*.
THEO. G. WORMLEY, M.D., LL.D., Professor of *Medical Chemistry*.
MORTON W. EASTON, PH.D., Professor of *Comparative Philology*.
EDMUND J. JAMES, PH.D., Professor of *Political and Social Science*.
REV. GEORGE S. FULLERTON, A.M., B.D., Professor of *Intellectual and Moral Philosophy*.
JOHN P. PETERS, PH.D, Professor of *Hebrew*.
DANIEL G. BRINTON, M.D., Professor of *American Archæology* and *Linguistics*.
REV. HERMANN V. HILPRECHT, PH.D., Professor of *Assyrian*.
MORRIS JASTROW, JR., PH.D., Professor of *Arabic* and *Rabbinical Literature*.
JAMES McKEEN CATTELL, PH.D., Lecturer in *Psycho-Physics*.

EDMUND J. JAMES, PH.D., *Secretary*.

MATRICULATES.

Frank S. Ballentine, A.M. (Univ. of Pa.),	Philadelphia.
Newton Black,	do.
L. W. Batten, A.B. (Harvard),	do.
F. P. Bossart, A.B. (Thiel College),	Youngstown.
Olive J. Davis, A.B. (Wellesley),	Philadelphia.
R. S. DeBow, A.B. (Phil. H.S.), B.D. (Drew Seminary),	do.
G. Doering, A.B. (Wagner College),	Troy, N. Y.

Digitized by Google

A. C. Delfs, Ab. (of Schleswig Gymnasium),	Schleswig, Germany.
C. W. Duane, A.B. (Univ. of Pa.),	Philadelphia.
Jos. D. Donahoo, A.B. (Wash. and Jeffer.),	do.
H. F. Fuller,	do.
G. A. Geuzmer, A.B. (Thiel College),	Toronto, Canada.
W. L. Geuzmer, A.B. do.	do. do.
A. W. Goodspeed, A.B. (Harvard),	Philadelphia.
Emily R. Gregory, A.B. (Wellesley),	do.
Carrie C. Guyer, A.B. (Smith),	do.
Amelia A. Hall, A.B. (Wellesley),	do.
A. H. Hord,	do.
Willis H. Hazard, A.B. (Haverford),	West Chester, Pa.
Marcus Jastrow, Ph.D. (Halle),	Philadelphia.
C. W. Jeffries, A.B. (Muhlenberg),	Germantown, Pa.
Eliza H. Kendrick, A.B. (Wellesley),	Philadelphia.
E. F. Kretschman, A.B. (Muhlenberg),	Germantown, Pa.
M. J. Kuchner, A.B. (Muhlenberg),	Germansville, Pa.
E. F. Keever, A.B. (Muhlenberg),	Reading, Pa.
S. P. Keeling, A.B.,	Philadelphia.
Jas. Kirkpatrick,	do.
Henrietta Leonard, A.B. (Smith),	do.
C. S. Lyons,	do.
J. A. Montgomery, A.B. (Univ. of Pa.),	West Chester, Pa.
J. R. Moses, A.B. (Univ. of Pa.),	Philadelphia.
I. S. A. Murphey,	do.
C. A. Miller, A.B. (Roanoke College),	Luray, Va.
D. D. Miller, A. B. (Thiel College),	do.
G. E. Merkley, A.B. (Thiel College),	N. Williamsb'g, Can.
W. R. Newbold, A.B. (Univ. of Pa.),	Shoemakertown, Pa.
W. Odhner, A.B. (New Church A.),	Philadelphia.
J. L. Prevost,	do.
W. Pendleton, A.B. (New Church A.),	Luray, Va.
R. W. Rogers, A.B. (John Hopkins Univ.),	Haverford, Pa.
A. J. Reichert, A.B. (Thiel College),	Utica, N. Y.
Hugo A. Rennert, B.S. (Univ. of Pa.)	Philadelphia.
J. W. Richards, A.B. (Muhlenberg College),	Allentown, Pa.
S. S. Smith, A.B. (Univ. of Pa.),	Philadelphia.
N. F. Schmidt, A.B. (Univ. of Pa.),	Freeland.
W. C. Scott, A.B. (Princeton),	Philadelphia.
F. M. Seip, A.B. (Muhlenberg),	Allentown, Pa.
Felix E. Schelling, M.A. (Univ. of Pa.),	Philadelphia.
Charles Spirakovski,	Philadelphia.
G. F. Stradling, A.B. (Univ. of Pa.),	do.
Helen Tuxbury, A.B. (Smith),	do.
Karl L. Wolters, Ab. (Gymnasium of Flensburg),	Hamburg, Germany.
M. S. Wooters, A.B. (Thiel College),	Greenville, Pa.
F. J. Williams,	Philadelphia.

54

Of the foregoing students, 21 pursued Assyrian; 9, Hebrew; 2, Arabic; 6, Philosophy; 5, Comparative Philology; 3, English; 2, History; 3, Chemistry; 3, Mathematics; 1, Physics; and 8, Social Science.

Digitized by Google

The object of this department is to supervise advanced studies, and, as far as possible, to afford advanced instruction in the various branches of Literature and Science. In those subjects which are ordinarily taught in the undergraduate courses of our American colleges, the only instruction given will be of an advanced character. In those which are usually not represented at all, or only very inadequately, both advanced and elementary courses will be offered. The opportunities of the department in each branch of study are open to all (whether college graduates or not) who in the judgment of the professor in charge are qualified to profit by the instruction given.

Instruction suitable for advanced students is at present offered in the following subjects:

1. American Archæology and Languages.
2. American History—Political and Constitutional.
3. Botany, Lectures and Laboratory practice.
4. Comparative Anatomy.
5. Comparative Philology and Sanskrit.
6. Chemistry Inorganic, Lectures and Laboratory practice.
7. Germanic Philology and Literature.
8. Law, Roman and History of Common Law.
9. Mineralogy, Lectures and Laboratory practice.
10. Political and Social Science.
11. Philosophy—Mental, Moral, and History of Speculative Philosophy.
12. Physics.
13. Semitic Langauges.
    (*a*) Hebrew—Classical and Rabbinical.
    (*b*) Aramæan.
    (*c*) Assyrian and Babylonian (Sumerian and Akkadian).
    (*d*) Ethiopic.
    (*e*) Arabic.
    (*f*) Other dialects like Phenician and Himjaritic known only from a few inscriptions.
14. Zoölogy—Lectures and Laboratory practice.

DEGREES.

The Degree of Doctor of Philosophy is conferred upon the following conditions:

1. The candidate must be either a Collegiate Bachelor of Arts or of Science, or must satisfy the Faculty, by examination or otherwise, that he possesses an equivalent preparation.

2. He must pursue during two years at least, under the supervision of

Digitized by Google

the Faculty, a course of study in three branches of literature or science (the choice to be approved by the Faculty), one of which shall be designated as the principal branch, and the other two as subordinate branches.

3. He must pursue detailed investigations in the principal study, must present a satisfactory thesis therein, and must pass an examination in all three branches.

For further information respecting this Department, address the Secretary of the Faculty.

FEES.

For those who are in regular course for the Ph.D. Degree the fee is $150.00 per year. The charge for those who enter as special students and take one or more courses varies with the subject chosen and the amount of instruction given.

POST-GRADUATE COURSE IN LAW.

MATRICULATES.

SENIORS.

Croasdale, John P.,	719 Walnut-st.,	Philadelphia.
Hoffman, Charles,	36 S. Third-st.,	Philadelphia.
McCourt, Thomas F.,		Scranton, Pa.
Melcher, Webster A.,		Horsham, Pa.
Scott, William C.,	210 S. Fourth-st.,	Philadelphia.

5.

JUNIORS.

Bremer, Charles, Jr.,	1430 S. Penn Square,	Philadelphia.
Brace, Harrison H.,		St. Paul, Minn.
Brennan, Louis P.,	116 S. Fourth-st.,	Philadelphia.
Calmore, Walter W.,	501 Chestnut-st.,	Philadelphia.
DeWitt, Alex. Renshaw,	39 S. Third-st.,	Philadelphia.
Smith, Henry W.,	432 Walnut-st.,	Philadelphia.

6.

Total, 11.

This course has for its aim to broaden and deepen the foundation of legal education. The first step required for the student's progress is the thorough training of a Law School. In the drill of an ordinary course at such an institution, he acquires a practical experience in the machinery of litigation, and he also acquires the lawyer's process of handling cases or of reasoning from them by analogy, while at the same time he masters the leading principles as they are applied in the main departments of law.

Digitized by Google

The advanced student starts with this equipment. His task is now that of the true lawyer, to find out the reason for every legal proposition which is established, and also to discover its relative importance in the hierarchy of principles which make up the system of law. The investigation involves researches in two directions: First, the source of each principle must be discovered, and the germ when found must be traced through the changes which it has undergone in the course of its growth or decay. The soundness of a principle or the range of its application can thus be illustrated and tested by experience. Owing to the conservative energy of the English race, pre-eminently exemplified in its lawyers, legal doctrines have maintained their continuity in spite of conquests and revolutions, thus furnishing an opportunity for the study of principles in operation under different institutions.

The material for investigating the sources of our law are abundant. The Anglo-Saxon laws exist in a state of exceptional completeness; the Feudal system has been wrought out almost before our eyes and stands before us in its rigid symmetry. The mediæval trade customs which entered England with commerce have been preserved in municipal statutes; the Pandects are a repository from which common lawyers have pilfered, from Glanville to Story. A lawyer who reads the Digest of Justinian for the first time will be struck by the familiar ideas which he encounters at every turn, and which he thought were inspired by the common law until he met them in Justinian's compilation.

The sources of our law have been explored, but they have not been turned to account. A history of legal thought must be written in order to make our precious archives available, and until that desideratum is obtained the full benefit of experience, which is the only guide for the application of any legal doctrine, will not be at command. In the absence of such a history, the scattered information bearing upon the genesis and evolution of legal tenets must be gathered at a disadvantage.

The second study is to classify the law and reduce it to a system. The Profession shares the aspiration of the lay public for a body of law which everyone can understand. It is this professional craving which accounts for the multitude of text-books professing to abridge different parts of the law, and for the frequent attempts to embody sections of the law in a series of propositions. The common aim of the bar and of the public is to simplify the law. The profession, however, knows that this can be accomplished in but one way, and that is by mastering the principles which underlie the different phases of the law. Not only must every part be known, but its relation to every other part must be ascertained in order to organize a system. The epitomes, made of different parts, serve to counteract the segregation of law according to the objects to which it is applied, and to

Digitized by Google

correct this retrograde tendency. The principles which are universal, extracted from digests of all the parts, will form a body by themselves, and the rank of each principle will be regulated by its relative importance. The modifications which the principles undergo in special parts of the law will be the only qualifications requiring special mention. The principles, for instance, of patent law will then be severed from the arts and sciences and form an integral portion of the legal system. The best professional opinion could readily furnish such an analysis of this, as well as of other specialties. The law is not absorbed by the material in which it works; on the contrary, by classifying matter the law brings it under the sway of reason. The law will be simplified because it will be scientific. It will not be petrified by enactment.

COURSE OF STUDY.

The course of study covers two years. The student, however, can begin at the opening of either year, November 1st.

One year of the study is devoted to the study of the Roman law and of the principles that have grown out of it.

The text-books used in this course are Hadley's *Introduction to the Roman Law*, Mackeldey's *Roman Law* and Holland's *Jurisprudence*. But these text-books serve simply as an outline of the subject. The works of Austin, Clark, Markby, Hunter, Moyle, Roby and others in English, besides authors in German and French, are consulted and utilized to fill out the framework of study.

In the analysis of an act, an important element in legal investigation, Aquinas and the Jesuit writers of to-day furnish the only source of information. Gury's *Compendium Morale* is used, though any Catholic manual would serve the purpose.

The year devoted to the study of the Common law is taken up with the Anglo-Saxon law, the Feudal system, and the principles peculiar to the Common law and developed in the course of its history. There is no adequate history of the English law, and the results of German investigations, of great importance during the past fifty years, lie scattered through separate treatises and periodicals, and have not been collected and made accessible to English students. The work of Glasson, *Histoire du droit et des Institutions d' Angleterre*, comprehends in its first and second volumes a summary of the modern researches into the early periods of our law, both Saxon and Norman. The second volume on the Norman period is used as text-book in connection with Gundermann's *Die Common Law* and Digby's *History of the Law of Real Property*. Kemble's *Anglo-Saxons in England* is the only available work in English for the Saxon period, and is adopted as the text-book for the class.

Digitized by Google

The primary principles of the Common law have been investigated by Judge Holmes, and his work on the Common law will serve as the guide for a study of them. The comparison of English and Continental theories of law is forced upon the profession in controversies between citizens of different countries where the rules of the various systems compete for the control of the legal relations between the parties. The work of Westlake on Private International Law is the most convenient text-book, though Story, Wharton, Foote and other writers will be consulted.

ADMISSION AND FEES.

Graduates of any law school of recognized standing and members of the bar are eligible as students in this department. The annual fee for tuition is twenty-five dollars.

EXAMINATIONS AND DEGREES.

Examinations are held annually in May, and are both oral and written. The written questions put at the last examination are appended.

Graduates of this Course receive the Degree of Master of Laws, unless the post-graduate course of law is combined with two other courses of study in the Department of Philosophy. Then the Degree of Doctor of Philosophy is conferred, on conditions stated on pp. 155–156.

A thesis upon some topic connected with the course is required to be handed in as early as possible during the second year. It is expected to contain an exhaustive analysis of the subject-matter.

For further information apply to the Dean,

JAMES PARSONS,
1534 *Locust Street,*
Philadelphia.

Digitized by Google

DEPARTMENT OF PHYSICAL EDUCATION.

This Department carries into practical operation the conviction that during the period of growth the body needs quite as much training as the mind, and that a college which holds out incentives to intellectual progress should not overlook the bodily progress without which all intellectual prizes, when won, are useless. To what other cause than the neglect of physical culture is it due that, in times past, the first scholars in college generally failed in after life to make good their early promise? Impressed with the belief that those who seek to develop the mind should also exercise a supervision over the body, the University has instituted this Department, and, through the liberality of the City and the zeal of the Alumni, has provided the means, and, what is equally important, the system, for the due care and development of the Physical Education of its students.

The means are supplied in the Athletic Grounds, obtained from the City, lying next to and partly surrounded by the College buildings, and comprising four acres, which have been fenced, graded and improved, a fine quarter-mile track laid, the middle of the lot prepared for base-ball, foot-ball, tennis, etc., a grand stand erected, and a competent person engaged to supervise and restrict the use of the grounds, and to see that the intentions of the Trustees that they are to serve the purpose of Physical Education, as well as of healthful relaxation, shall be thoroughly carried out. The boat-house of the Athletic Association, situated on the Schuylkill, above the dam, is open to all matriculates in the Department of Physical Education upon the payment of a small additional sum.

The University has also fitted up a gymnasium, wherein are to be found all the latest appliances for the proper, systematic and symmetrical development of the body. These are to be used by each student only after undergoing his physical examination, and receiving advice from the Director of this Department as to the particular needs of his body, and as to the weak points which need strengthening and development. This advice is founded upon a careful study not only of his present condition, but of his personal and family history, taking thus into consideration hereditary predisposition to disease, if any exists.

Digitized by Google

The system consists in direct, personal, individual care of each student, who, immediately after entrance to College, receives a thorough physical examination in regard to his general health, strength, and muscular development, which is duly recorded. An extract from this record is sent to his parent or guardian as follows:

DEAR SIR:

The following extract from the University Records represents the general physical condition of

of the Class of

Development . . . . . Average Development . . . . . .
Strength . . . . . Average Strength . . . . . .
Condition, viz.: Relation of Strength to development . . . . . Average Condition . . . . . .
Chest Capacity . . . . . Average Capacity . . . . . .
Muscles especially requiring development . . . . . .
Exercise recommended . . . . . .
General Advice . . . . . .

It is hoped that he will follow the line of physical work thus indicated with sufficient persistence to effect some permanent improvement.

[Signed] *Director of Physical Education.*

This examination is repeated at stated intervals, certainly once every year of his college life, and the record will show the improvement or deterioration of each student, and the amount and the quality of exercise which each one demands, both of which must be administered or recommended by an experienced teacher. Merely competitive sports do not of themselves supply these demands. Some men, naturally athletic and fond of exercise, need to be guided and directed, sometimes to be restrained; others, of sluggish temperament or of too studious habits, must be stimulated; all require to have their work, whether voluntary or compulsory, directed by proper methods, so that the result may be a harmonious and symmetrical development of the entire organism.

For further information apply to

J. WILLIAM WHITE, M.D.,
Director of Physical Education,
1810 *South Rittenhouse Square.*

A. H. P. LEUF, M.D.,
Assistant-Director Physical Education,
210 *S. 36th Street.*

Digitized by Google

LIBRARY.

The Library is one of the original departments of the University, possessing among its treasures works presented to the Academy of Philadelphia in 1749 (the year of its institution), others purchased for the same by a Committee, of which Benjamin Franklin was chairman, in 1750, and others given by the Rev. William Smith, D.D., first Provost of the College of Philadelphia, and by Louis XVI and other early friends and patrons. It contains over 40,000 bound volumes, and considerably more than that number of unbound volumes and pamphlets.

It comprises a fine collection of public documents, dating from the institution of the Federal Government, and has been for some time an official depository of the latter for later publications.

Valuable additions have been made to the departments of history and literature from the income of the TOBIAS WAGNER LIBRARY FUND, donated in memory of a deceased Trustee of the University.

THE COLWELL LIBRARY, the munificent gift of the late Stephen Colwell, consisting of over 7,000 volumes, is one of the most complete collections of works on Finance and Political Economy in the world, containing nearly everything of importance on these subjects in the English, French and Italian languages published before 1860. It is supplemented by THE CAREY LIBRARY, the bequest of the late Henry C. Carey, embracing many books of more recent date, being especially rich in statistics, European government reports, and the like, and including about 3,000 English pamphlets, bound in chronological order, covering the period from the close of the seventeenth century to our time, presented to Mr. Carey by Mr. McCalmont, of London.

THE EVANS ROGERS LIBRARY is composed of standard works treating of drawing, mathematics, astronomy, physics, surveying and explorations, technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering, together with a valuable collection of reports of American, English and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams, and drawings.

Digitized by Google

THE WETHERILL LIBRARY consists of works on Chemistry.

THE ALLEN LIBRARY includes about 5,000 volumes relating to Bibliography, Greek and Latin Literature, Military Science, and Shakespeare, selected with great care by their former owner, the late Professor George Allen, LL.D., of the University.

THE HENRY SEYBERT LIBRARY OF MODERN SPIRITUALISM embraces a large collection of works on that and cognate subjects.

THE MCCARTEE LIBRARY, the recent gift of D. B. McCartee, M.D., comprises nearly 1,000 volumes in Chinese and Japanese, and over 200 in European languages concerning the history and literature of China and Japan.

THE KRAUTH LIBRARY, just founded by the Society of the Alumni of the College Department in honor of the late Vice-Provost of the University, the Rev. Charles P. Krauth, D.D., comprehends the subjects of Intellectual and Moral Philosophy.

THE STILLÉ MEDICAL LIBRARY, founded by Professor Alfred Stillé, M.D., embraces 6,000 bound volumes and as many unbound volumes and pamphlets.

Besides the books on Natural History contained in the general Library, there is a special collection of about 3,600 volumes relating to that subject in the Biological Laboratory.

Among the works on law are included many on Roman jurisprudence and the civil code from the library of the late Judge Bouvier, presented to the University by his son-in-law, R. E. Peterson, M.D., and the noted collection of American, English, Scotch and Irish Reports, formerly the property of the Hon. Benjamin H. Brewster, numbering 4,200 volumes, recent gift by George W. Biddle, Esq., and family, in memory of the late George Biddle, Esq.

The College Library is open every day during the session, except Saturday and Sunday, from 9 A.M. to 5 P.M., and both professors and students are permitted to withdraw books for perusal at home. The use of the Library for consultation is also accorded graduates and other persons properly introduced. Libraries in other departments are accessible under regulations of those in charge.

Digitized by Google

CENTRAL COMMITTEE OF THE ALUMNI.

This organization, the result of a growing desire amongst the Alumni at large for a definite influence in the affairs of the University, was established by the Board of Trustees, March 7th, 1882. Under the Revised Statutes, sec. 34, the Central Committee is authorized, for every third vacancy which may occur in the Board of Trustees, to nominate four candidates, one of whom may be chosen a member of the Board: if none of these be elected, others are to be nominated until the vacancy is filled. The Central Committee arranges itself in certain sub-committees, one for each Department, whose duty it is, from time to time, to attend the examinations, recitations and other exercises of the Department for which it has been appointed, and to confer with the Professors and Faculty thereof on all matters tending to improvement. It appoints, too, a Committee on Property and Endowment, to which the Treasurer of the University sends annually a copy of his report to the Board of Trustees, of the income and assets of the University. The plan of organization is as follows:

The officers of the Central Committee are a President, Secretary, and Treasurer, elected annually. The members are thirty in number, six elected annually for a term of five years, by the duly qualified electors, as defined below, voting by ballot, in person, on Commencement Day, in Philadelphia. Of the six so elected, two must be graduates of the Collegiate Departments of at least three years' standing, two of the Medical Departments, and two of the Law Department. All persons are qualified electors that have received a degree, honorary or otherwise, from the University, except members of the Board of Trustees, or other officers of government or instruction, none of whom are eligible as members of the Central Committee. Preliminary to the annual election a list of eighteen eligible names is mailed to the Alumni, who select twelve of the number as their regular nominees. At the election, however, any other duly qualified persons may be voted for.

All Alumni are cordially urged to bring to the attention of the Committee any matters or suggestions affecting the welfare of the University, and any who have not heretofore received postal-card ballots for the preliminary nominating election, and desire them, should send name and address, with degree and year of graduation, to the Secretary.

Digitized by Google

Members of the Central Committee.

1888*

Traill Green, M.D.,	Easton, Pa.
John H. Packard, A.M., M.D.,	1926 Spruce-st., Philadelphia.
George F. Martin, A.M.,	3903 Locust-st., do.
G. Colesbury Purves, A.M., LL.B.,	700 Walnut-st., do.
Henry C. Olmsted, A.M., LL.B.,	215 S. Fifth-st., do.

1889.

Claudius H. Mastin, M.D., LL.D.,	Mobile, Alabama.
Chas. E. Cadwalader, A.M., M.D.,	240 S. Fourth-st., Philada.
R. Dale Benson, A.M.,	510 Walnut-st., do.
Effingham B. Morris, A.M., LL.B.,	404 Locust-st., do.
Alfred Lee, A.M., LL.B.,	520 Walnut-st., do.
John Douglass Brown, Jr., A.M., LL.B.,	142 S. Fourth-st., do.

1890.

George C. Harlan, M.D.,	1515 Walnut-st., Philada.
Theodore H. Seyfert, M.D.,	1709 Mt. Vernon-st., Philada.
John Leighton McKim, A.M.,	Milford, Del.
Persifor Frazer, A.M., D. ès Sc. Nat.,	201 S. Fifth-st., Philadelphia.
William R. Philler, A.M., LL.B.,	1340 Chestnut-st., do.
Hampton L. Carson, A.M., LL.B.,	913 Walnut-st., do.

1891.

Henry Budd, A.M.,	737 Walnut-st., Philadelphia.
William H. Klapp, A.M., M.D.,	2132 Pine-st., do.
Herbert M. Howe, M.D.,	1606 Locust-st., do.
Robert H. Neilson, A.M.,	215 S. Fifth-st., do.
J. Sergeant Price, LL.B.,	709 Walnut-st., do.
Walter George Smith, A.M., LL.B.,	402 Walnut-st., do.

1892.

James W. Robins, D.D.,	1821 De Lancey Place, Phila.
H. Laussat Geyelin, A.M., LL.B.,	Ninth and Walnut-sts., do.
J. Levering Jones, LL.B.,	913 Walnut-st., do.
Alfred Whelen, M.D.,	123 S. Twentieth-st., do.
B. Alexander Randall, M.D.,	1806 Chestnut-st., do.

President.	J. Sergeant Price,	709 Walnut-st., Philadelphia.
Secretary.	Alfred Lee,	520 Walnut-st., do.
Treasurer.	William H. Klapp, M.D.,	2132 Pine-st., do.

*The term expires, in each case, on Commencement Day of the year indicated.

Digitized by Google

FEES AND EXPENSES.

TUITION FEES.

The Tuition Fee in the *College Department* is one hundred and fifty dollars a year, except that for the last three years in the Towne Scientific School, and for the last two years in the course in Philosophy it is two hundred dollars a year, and for the course in Music thirty dollars a year.

The Tuition Fee in the *Departments of Medicine, Biology* and *Philosophy* is one hundred and fifty dollars a year; in the *Departments of Dentistry* and *Veterinary Medicine,* one hundred dollars a year; in the *Department of Law,* eighty dollars a year; and in the *Auxiliary Department of Medicine,* except to students and graduates of the Department of Medicine, thirty-five dollars for the course.

For time at which these tuition fees are payable, see tabulated statement below. All fees for special or partial courses are payable in advance.

Students in one department may attend lectures given in any other department, by consent of the Dean, without charge, but they shall pay the regular special fees for all practical work.

Graduates of a department may attend the lectures in that department, but shall also pay regular special fees for all practical work.

Under no circumstances are any changes made in the established fees.

GRADUATION FEE.

In the *College Department* the Graduation Fee is for the Baccalaureate Degree twenty dollars, for the Master's Degree ten dollars.

The Graduation Fee in the *Department of Dentistry* is thirty dollars; in the *Department of Philosophy,* thirty-five dollars; and in the *Auxiliary Department of Medicine,* ten dollars.

No graduation fee is required in the *Departments of Medicine, of Veterinary Medicine,* and *of Law.*

CERTIFICATE FEE.

A fee of ten dollars is charged each student receiving a certificate on completion of a special or partial course.

Digitized by Google

COLLEGE DEPARTMENT.

Freshman Year and Sophomore Year.

Annual Tuition Fee	Course in Arts, . . .	$150 00
	Course in Philosophy,	
	Course in Science, . .	
Annual Fee for Department of Physical Culture, ...		5 00

Junior Year and Senior Year.

Annual Tuition Fee	Course in Arts, ...	$150 00
	Course in Philosophy, ...	200 00
	Course in Technical Science, ...	200 00
	Course in Finance and Economy, . .	150 00
	Course in Music, ...	30 00
* Annual Fee for Department of Physical Culture, ...		5 00
Deposit required in Chemical Laboratory to cover breakage, balance refunded, ...		$20 00

The Annual Tuition Fees are payable to the Treasurer of the University in two instalments, on October 1st and February 1st.

Graduation Fee, Baccalaureate Degree, ...	$20 00
" " Master's Degree, ...	10 00
Fee for Certificate of Special or Partial Course, ...	10 00

MEDICAL DEPARTMENT.

Winter Term.

First Year.

Matriculation Fee, ...	$5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection, ...	150 00
Dissecting material, ...	$1 a part.

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection.	$150 00
Dissecting material, ...	$1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee), ...	$150 00

* This fee is not required of students in the course of Music.

Digitized by Google

Fee for the full third year course to graduates of other schools, including privilege of applying for graduation (no graduation fee), ... $150 00
Material for operating, ... $1 a part.

Fourth Year (Voluntary).

For general ticket, including all the practical courses of this year (no graduation fee), ... $150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee), ... 200 00

SPRING SESSION.

Matriculation fee (paid once only), ... $5 00
Tuition fee, ... 30 00
This sum will be credited on account of the fee for the ensuing Winter Term.

The Tuition Fee of $150 each year is conditioned on its being paid before November 1st. If a division of payments is desired, the fee will be $160 for the year, of which at least $80 must be paid before November 1st.

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including for bandaging and operating, to graduates of this School, ... $75 00
For a single Course of Lectures, except Materia Medica, . . . 20 00
For Course on Materia Medica, and on Bandaging and Operating, each, ... 10 00
For Practical Course in the Chemical Laboratory, ... 25 00
For the Course in Practical Gynæcology of the third year, . . 25 00
For any one of the remaining practical courses of third year, . 15 00

Graduates of the School are admitted to the LECTURES free of charge; but they pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

All fees are payable in advance to the Secretary of the Faculty, who will issue a general ticket of admission to all the lectures and practical instruction.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

Matriculation Fee,	$5 00
Tuition Fee for the course,	35 00

Students and Graduates of the Department of Medicine may attend the lectures in this department without charge.

Graduation Fee,	10 00

Partial Courses.

Tuition Fee for any one or more of the five courses, each,	$15 00

DEPARTMENT OF DENTISTRY.

Matriculation Fee,	$5 00

Winter Term.

First Year.

Tuition Fee,	$100 00

Second Year.

Tuition Fee,	$100 00
Fee for Dissection,	10 00
Graduation Fee,	30 00

The payment of the $100 Tuition Fee may be divided as follows: $50 on entering, and the balance on or before November 1st. If any part is left unpaid after this date, $10 will be added to the Tuition Fee.

DEPARTMENT OF BIOLOGY.

Matriculation Fee,	$5 00

General Course.

First Year and Second Year.

Annual Tuition Fee,	$150 00
Fee for Certificate,	10 00

Fees for Partial Courses.

General Biology,	$90 00
Mammalian Anatomy,	30 00
Botany, plant analysis,	30 00
Histology,	30 00
Embryology,	30 00
Zoölogy and Comparative Anatomy,	30 00
Botany and Morphology,	75 00
Physiology,	25 00

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

Matriculation Fee,	$5 00
Annual Tuition Fee,	100 00

DEPARTMENT OF LAW.

Matriculation Fee,	$5 00

First Year and Second Year.

Annual Tuition Fee,	$80 00

A graduation fee is not required.

DEPARTMENT OF PHILOSOPHY.

Matriculation Fee,	$5 00

First Year and Second Year.

Annual Tuition Fee,	$150 00
Graduation Fee,	35 00

The cases of Applicants for a Degree on examination alone, without instruction or supervision, will be considered separately.

POST-GRADUATE COURSE OF LAW.

First Year and Second Year.

Annual Tuition Fee,	$25 00

ACCOMMODATIONS.

Good board can be had near the University at from five to seven dollars a week; and a list of recommended boarding-houses can be seen on application to the Rev. Jesse Y. Burk, Secretary of the Board of Trustees, at the University.

EXPENSES.

	Min.	Max.
Board, thirty weeks*	$150 00	$210 00
Tuition (according to Department and Year of the Course)	100 00	200 00
Text-books,	10 00	50 00
	$260 00	$460 00

*The session in some of the Departments is from five to nine weeks longer.

Digitized by Google

DEGREES, HONORS, AND PRIZES, 1886–1887.

HONORARY DEGREES.

JUNE 8, 1887.

Doctor of Divinity.—REV. GEORGE POMEROY ALLEN, REV. SAMUEL D. MCCONNELL, REV. EDWARD T. BARTLETT, REV. ROBERT ELLIS THOMPSON.

Doctor of Laws.—REV. SABATO MORAIS, FERDINAND V. HAYDEN, M.D.

Doctor of Philosophy.—PROFESSOR JOHN A. RYDER.

DEGREES IN COURSE—CERTIFICATES.

JUNE 8, 1887.

Bachelor of Arts.—

William Allen, Jr.,
David Werner Amram,
William Sinclair Ashbrook,
Chauncey Ralston Baugh,
Edgar French Brown,
Charles Tyler Cowperthwait,
Edwards Sanford Dunn,
George Fetterolf,
George Harrison Frazier,
Fred. Wm. Wilson Graham,
John McArthur Harris,
James Haworth,
Crawford Dawes Hening,
Oliver Huckel,
Joseph Siegmund Levin,
Walter Rodman Lincoln,
Walter Biddle Lowry,
Christopher Magee, Jr.,
Robert Stephen Maison,
James Alan Montgomery,
Hyland Clark Murphey,
William Romaine Newbold,
George Wharton Pepper,
Francis John Pryor, Jr.,
Theodore Wood Reath,
Alexander Wilson Russell, Jr.,
Robert Bowen Salter,
André William Séguin,
Henry Daniel Emanuel Siebott,
Henry Naglee Smaltz,
James Somers Smith, Jr.,
Witmer Stone,
George Flowers Stradling,
Charles Cooper Townsend.

Bachelor of Philosophy.—

Forrest Murrell Anderson,
William Francis Audenreid,
Edward Charles Batchelor,
Charles Seligman Bernheimer,
Francis Asbury Bruner,
Joseph Alison Eyster, Jr.,
Clement, Acton Griscom, Jr.,
Samuel Frederic Houston,
Hew Brydon MacLean,
Frank Wenrich Sheafer,
Miles Tucker,
Edward Lowber Welsh.

Digitized by Google

Bachelor of Science.—

Henry Clay Adams,
Louis Eugene Amet,
Henry Price Ball,
Charles Thos. Parry Brunner,
Albert Rowland Cline,
Edgar Pardee Earle,
Joseph Sketchley Elverson,
Thomas S. R. Flickwir,
Lee Käufer Frankel,
Silas Godfrey Griffith,
William Hahman,
George Bacon Hancock,
Walter Eugene Harrington,
John Dawson Hawkins,
John Julius Hovey,
Frank James Keeley,
Edward Fulbister Kenney,
Leon Kraft,
Jno. Philip Krecker,
Theophilus Kuelling,
Thomas Love Latta,
Charles Robert Lee,
Leighton Lee,
William McLean,
James Francis Magee, Jr.,
Albert Lee Magilton,
George Ledlie Martin,
Levis Passmore Newlin,
William Byrd Page,
David Pepper, Jr.,
Andrew Perry Redifer,
Frank Remi Remont,
Howard Smith Richards,
Robert N. Riddle,
Henry Hunter Seyfert,
Franklin Sheble,
James Reeves Siddall,
Alfred Henry Smith,
William Poultney Smith, Jr.,
Milton Valentine Snyder,
Theodore Nelson Spencer,
Daniel Morrell Stackhouse,
Horace Ambrose Stever, Jr.,
Joseph Christian Wagner,
John Wallace Weaver,
Alfred Weeks, Jr.,
Alan Dean Whittaker.

Bachelor of Music.—

Preston Ware Orem.

Bachelor of Laws.

Louis A. Biddle,
Russell T. Boswell,
Charles Bremer, Jr.,
Louis P. Brennan,
Charles D. Brown,
Walter W. Calmore,
Henry Brinton Coxe, Jr.,
Morris Dallett,
Francis J. Deary,
Alexander H. De Witt,
Wm. Rees Evans,
Leonard Finletter,
Robert P. Fletcher,
Harry K. Fries,
W. Roger Fronefield,
John Lentz Garrett,
Daniel Gibbons,
John Fred Hartman, Jr.,
Calvin F. Heckler,
Ernest H. Hunter,
James Collins Jones,
Horatio G. Lloyd, Jr.,
Roberts Lowrie,
Robert Hunter McGrath, Jr.,
J. Craig McLanahan,
Henry A. McMurrow,
Thomas W. McNeil,
Abner H. Mershon,
S. Duffield Mitchell,
Everett Moon,
Ziba T. Moore,
Harry P. Orlemann,
Albert M. Ott,
Jacob A. Scheidt,
Louis K. Siggons,
Henry Washington Smith,
Wm. W. Smithers,
Arthur C. Snyder,
Lewis Starr,
Joseph T. Taylor,
Henry Tesnow,
Samuel Huckel Kirkpatrick,

Digitized by Google

Frank P. Krebs,
Charles Kuni, Jr.,
Joseph W. Thompson,
William C. Wilson,
Milton C. Work,
Stuart Wyeth.

Master of Arts.—

John August William Haas, A.B.,
John Mullen, A.B.,
James Dallas Steele, A.B.,
Ardemus Stewart, A.B.

Bachelor of Sciences, Auxiliary to Medicine.—

B. Franklin Stahl, M.D.

Bachelor of Divinity.—

Frank Schell Ballentine, A.M.,
John August William Haas, A.M.

Practical Chemist.—

Abram Trimble Eastwick, B.S.,
William Daniel Weikel, B.S.

Mining Engineer.—

Amos Peaslee Brown, B.S.,
Percy McGeorge, B.S.,
Alfred Weeks, B.S.,
James Harmar Knight, B.S.,
Marshall Rogers Pugh, B.S.,
Samuel Jennings White, B.S.

Mechanical Engineer.—

Edgar Augustus Alcott, B.S.,
Theodore Gould, Jr., B.S.,
Joseph David Israel, B.S.,
David Edward Tracey, B.S.,
William Augustus Bigler, B.S.,
Thomas Graham Grier, B.S.,
Leon Kraft, B.S.,
Carl Otto Hering, B.S.

Civil Engineer.—

Thomas S. R. Flickwir, B.S.,
William Salter Freeman, B.S.,
Charles Herman Haupt, B.S.,
Joseph Edward Horn, B.S.,
Earl Thomson, B.S.,
Francis Emlen Hoskins, B.S.,
Henry Jackson Mullen, B.S.,
Edward Arnott Pearson, B.S.,
John Williamson Zeigler, B.S.

Doctor of Veterinary Medicine.—

Charles M. Cullen,
Hiram P. Eves,
Simon J. J. Harger,
Richard W. Hickman,
Charles Lintz,
Edgar Marlin,
William B. Montgomery,
John F. Vandegrift,
Richard G. Webster,
Charles Williams.

CERTIFICATES.

Department of Science.—

Frank Herron Carothers,
Louis Joseph Mátos,
William Vincent McGrath, Jr.,
James Clarence Ogden.

Digitized by Google

Department of Biology.—

Milton J. Greenman, Marcus A. Weems.

Department of Finance and Economy.—

Norton Buel Young.

Department of Music.—

Margaret G. Devine, Evor Williams,
Elizabeth A. Reinboth, Sara Wilson,
Emma A. Whiteley.

MAY 2, 1887.

Doctor of Medicine.—

Allen, Americus R.,	Carlisle,	Pennsylvania.
Andrews, George E., A.B. (Univ. of Rochester),	Granville,	Ohio.
Atlee, William A., Jr.,	Lancaster,	Pennsylvania.
Baker, George Fales, B.S. (Univ. of Pa.),	Philadelphia,	do.
Balliet, Tilghman M., A.B. (Franklin and Marshall),	New Mahoning,	do.
Barney, Delbert, A.B. (Lafayette),	Wilkes-Barre,	do.
Bemish, Reuben H.,	Rochester,	New York.
Berens, T. Passmore,	Philadelphia,	Pennsylvania.
Bowen, Cuthbert F., B.A. (Durham University),	do.	do.
Bowman, David P., B.E.,	Koiner's Store,	Virginia.
Bradley, Edward T.,	Gallitzin,	Pennsylvania.
Brinkmann, Leon,	Philadelphia,	do.
Burns, Samuel W.,	do.	do.
Cameron, George A.,	Zion,	Maryland.
Carlisle, Paris T., Jr.,	Frederica,	Delaware.
Cattell, Henry W., A.B. (Lafayette),	Philadelphia,	Pennsylvania.
Church, Joseph G.,	Shenandoah,	do.
Clarkson, J. A. Coleman, A.B. (Dickinson Seminary),	Altoona,	do.
Cleaver, J. Vale,	E. Bethlehem,	do.
Clewell, Cary K.,	Telford,	do.
Crandall, R. Percy,	Brooklyn,	New York.
Curtis, George L., D.D.S.,	Syracuse,	do.
Cyphers, Millard F.,	Wilkes-Barre,	Pennsylvania.
Davis, James A., Ph.G.,	Greensburg,	do.
Dingee, Charles,	Newportville,	do.
Doron, John George, A.B. (Brown),	Mt. Holly,	New Jersey.
Douglas, Malcolm, Jr.,	E. Wareham,	Massachusetts.
Edgar, Lambert H.,	Philadelphia,	Pennsylvania.
Ely, Thomas C., Jr., Ph.B. (Maddison Univ.),	do.	do.
Espinoza, Alexandro,	Managua,	Nicaragua.
Farr, William W.,	Philadelphia,	Pennsylvania.
Fell, Alexander G., B.S. (Princeton),	Wilkes-Barre,	do.

Digitized by Google

Fitzpatrick, Charles, Jr.,	Chattanooga,	Tennessee.
Frost, William M., A.B. (Dickinson),	Shamokin,	Pennsylvania.
Fundenberg, George B., Jr., A.M. (Western University),	Pittsburgh,	do.
Gale, John P.,	Woodland,	California.
Givin, S. A. Mercer,	Clifton Heights,	Pennsylvania.
Glover, George B., A.B. (Emory),	Monticello,	Florida.
Grant, Horace S.,	Navarre,	Ohio.
Griffith, Elijah,	Pittston,	Pennsylvania.
Grigg, Thomas A.,	Tyne Valley,	Prince Edward Isl.
Hartswick, Thomas H.,	Clearfield,	Pennsylvania.
Hartzell, Charles A.,	Fayetteville,	do.
Head, Joseph, D.D.S.,	Germantown,	do.
Heisler, John Clement, Ph.G.,	Philadelphia,	do.
Henkel, Alfred Davis,	New Market,	Virginia.
Hugenschmidt, Arthur C., D.D.S.,	Paris,	France.
Hunt, Charles D.,	Williamsport,	Pennsylvania.
Hutchinson, Randall, A.B. (Princeton),	Lawrenceville,	New Jersey.
Jennings, John E.,	Harrisburgh,	Pennsylvania.
Johnson, Theodore M., Ph.G.,	Huntington,	Indiana.
Jones, Kent C.,	Milton,	Delaware.
Jones, Le Roy H.,	Utica,	New York.
Kimmell, Louis J. C.,	Philadelphia,	Pennsylvania.
Kintzing, Pearce, B.S. (Lafayette),	Lock Haven,	do.
Kirby, Ellwood R.,	Philadelphia,	do.
Knotts, Ira D.,	Davistown,	do.
Lacayo, Alfonso, A.B.,	Leon,	Nicaragua.
Lambach, Frederick, Jr.,	Princeton,	Iowa.
Leidy, Joseph, Jr., A.B. (Central High School),	Philadelphia,	Pennsylvania.
Lord, Jere W., A.B. (Johns Hopkins),	Baltimore,	Maryland.
Macias, José J., Ph.B.,	Leon,	Nicaragua.
Marchand, Jacob F., A.M. (Washington and Jefferson),	Irwin,	Pennsylvania.
Maercklein, Bernhard G., D.D.S.,	Milwaukee,	Wisconsin.
Martin, Charles B.,	Bart,	Pennsylvania.
Martin, Peter J. J.,	Easton,	do.
Maurer, James M., A.B. (Lafayette)	Mt. Carmel,	do.
Mial, Leonidas L., A.B. (Univ. of N. C.),	Raleigh,	North Carolina.
Moylan, Peter F.,	Pittston,	Pennsylvania.
McAlister, John B., A.B. (Penna. College),	Gettysburg,	do.
McCauley, Charles A.,	Columbia,	do.
McCauley, John W., A.B. (Union College),	Stanley,	New York.
McCreight, Robert, Ph.G.,	Philadelphia,	Pennsylvania.
McDonald, John J., M.D.,	Cove,	Oregon.
Nickle, S. Pusey,	Port Deposit,	Maryland.

Digitized by Google

Norris, Richard C., A.B. (Dickinson),	Washington,	District of Columbia.
Prentice, Frederic W., M.D.,	Urbana,	Illinois.
Pyle, William L.,	West Chester,	Pennsylvania.
Reath, Benjamin B., Jr., A.B. (Univ. of Pa.),	Philadelphia,	do.
Reeder, Jeremiah V.,	Muncy,	do.
Roessler, George F., Ph.G.,	Berlin,	Germany.
Rudderow, Francis, A.B. (Univ. of Pa.),	Philadelphia,	Pennsylvania.
Salinas, Sebastian, B.S.,	Leon,	Nicaragua.
Smith, Joseph R.,	Wilmington,	Delaware.
Sprissler, Theodore, Ph.G.,	Philadelphia,	Pennsylvania.
Stahl, B. Franklin, Ph.G.,	do.	do.
Stein, James,	Girardville,	do.
Talley, Frank W.,	Wilmington,	Delaware.
Taylor, William B., A.B. (Univ. of Wooster),	Turtle Creek,	Pennsylvania.
Townes, William C., Ph.B. (Univ. of Miss.),	Oxford,	Mississippi.
Trout, John Harry, Ph.G.,	Landisville,	Pennsylvania.
Turnbull, Thomas, Jr.,	Hartford,	Connecticut.
Tybout, Richard Raymond,	New Castle,	Delaware.
Walker, William J.,	E. Bethlehem,	Pennsylvania.
Weston, George D., B.S. (Dartmouth),	Windsor,	Vermont.
Windrufva, Sven, M. F. C. (Univ. of Upsala),	Philadelphia,	Pennsylvania.
Witherspoon, John A.,	Columbia,	Tennessee.
Wood, Stephen Carroll, A.B. (Yale),	Philadelphia,	Pennsylvania.

Of the foregoing there were from

California,	1	New Jersey,	2
Connecticut,	1	New York,	5
Delaware,	5	Nicaragua,	4
District of Columbia,	1	North Carolina,	1
Florida,	1	Ohio,	2
France,	1	Oregon,	1
Germany,	1	Pennsylvania,	57
Illinois,	1	Prince Edward Island,	1
Indiana,	1	Tennessee,	2
Iowa,	1	Vermont,	1
Maryland,	4	Virginia,	2
Massachusetts,	1	Wisconsin,	1
Mississippi,	1		
		Total,	99

Digitized by Google

MAY 1, 1887.

Doctor of Dental Surgery.—

Amend, Frederick W., Jr.,	Philadelphia,	Pennsylvania.
Arnold, Wm. Frank,	Rochester,	New York.
Bentzen, Michael H.,	Bergen,	Norway.
Bohn, Henry W.,	Robesonia,	Pennsylvania.
Codman, Charles A. E.,	Philadelphia,	do.
Darrell, Oliver D.,	Washington,	District of Columbia.
Deming, Fay H.,	Sheldon,	Vermont.
Despecher, Felix J.,	Orsay,	France.
Doherty, R. Peel,	Kingston,	New Brunswick.
Dunn, Thomas J.,	Philadelphia,	Pennsylvania.
Elliott, Walter V.,	Mansfield,	do.
Fernandez, y Lombard, Emeterio,	Jovellanos,	Cuba.
Frick, Theodor,	Zürich,	Switzerland.
Fuller, Dwight B., Jr.,	Philadelphia,	Pennsylvania.
Garesche, Arthur F.,	Cardenas,	Cuba.
Hammond, Julian T., Jr.,	Frankford,	Pennsylvania.
Herbein, Isaac W.,	Sinking Spring,	do.
Hill, William W.,	Washington,	Georgia.
Howe, John B.,	Ithaca,	New York.
Johnson, W. Howard,	Milton,	Pennsylvania.
Jones, William L., Jr.,	Philadelphia,	do.
Keim, Milton N.,	Philadelphia,	do.
Milliken, James A.,	Philadelphia,	do.
O'Malley, John F.,	Wilkes-Barre,	do.
Outcault, Charles W.,	Lancaster,	Ohio.
Pancoast, Samuel A.,	Ashtabula,	do.
Paxson, Alfred,	West Chester,	Pennsylvania.
Payne, Ralph G.,	Cattaraugus,	New York.
Pérez, Eduardo A.,	Guayaquil,	Ecuador.
Powel, Milton,	Philadelphia,	Pennsylvania.
Rehfuss, William F.,	Philadelphia,	do.
Seip, Howard S.,	Allentown,	do.
Swing, R. Hamill D.,	Coatesville,	do.
Tees, Ambler, Jr.,	Philadelphia,	do.
Turner, Wm. Jarvie (M.D.),	Brooklyn,	New York.
Uhler, Orandus H.,	Easton,	Pennsylvania.
Wall, Richard J.,	Hummelstown,	do.
White, Joseph W.,	Philadelphia,	do.
Zayas, Fernando A. de,	Matanzas,	Cuba.

SUMMARY.

Cuba,	3	Norway,	1
District of Columbia,	1	Ohio,	2
Ecuador,	1	Pennsylvania,	22
France,	1	Switzerland,	1
Georgia,	1	Vermont,	1
New Brunswick,	1		
New York,	4	Total,	39

Digitized by Google

HONORS.

In the College Faculty, at the examination for Degrees—

In the Arts—

Of the *First Class*, to George Flowers Stradling, and William Romaine Newbold.

Of the *Second Class*, to James Alan Montgomery, George Wharton Pepper, Joseph Siegmund Levin, John McArthur Harris, James Haworth, Walter Rodman Lincoln, and Witmer Stone.

Of the *Third Class*, to William Sinclair Ashbrooke, Oliver Huckel, Henry Daniel Emanuel Siebott, Charles Cooper Townsend, Robert Bowen Salter, Charles Tyler Cowperthwait, George Harrison Frazier, and James Somers Smith, Jr.

In the Towne Scientific School—

Of the *First Class*, to Alfred Henry Smith.

Of the *Second Class*, to Walter Eugene Harrington, Howard Smith Richards, and John Dawson Hawkins.

Of the *Third Class*, to George Ledlie Martin, Franklin Sheble, Edgar Pardee Earle, Joseph Christian Wagner, Alan Dean Whittaker, William McLean, Henry Hunter Seyfert, Theodore Nelson Spencer, Lee Käufer Frankel, William Hahman, Daniel Morrell Stackhouse, William Byrd Page, and James Reeves Siddall.

Wharton School of Finance and Economy—

Of the *Second Class*, to Forrest Murrell Anderson, and Miles Tucker.

Of the *Third Class*, to Edward Charles Batchelor, William Francis Audenried, Clement Acton Griscom, Jr., Charles Seligman Bernheimer, Francis Asbury Bruner, and Joseph Allison Eyster, Jr.

Undergraduate Course in Philosophy—

Of the *Third Class*, to Frank Remi Remont, George Fetterolf, Robert Stephen Maison, and Hyland Clarke Murphey.

At the Annual Examination DISTINCTIONS of the *First Class*—

In the Arts to—

Juniors—Horace Clarke Richards, and Theodore William Kretschmann.

Sophomores—William Clarence Arrison, and Charles Peabody.

Freshmen—Josiah Harmar Penniman, and William Wilson Barr, Jr.

Theses mentioned as worthy of High Commendation—

In the Towne Scientific School—

Post-Senior Class—The Thesis, the joint work of Messrs. *Eastwick*, *Matos*, and *Weikel*, of the Chemical Section.

Digitized by Google

The Theses of Messrs. *Bigler*, *Gould*, *Grier*, and *Kraft*, Section of Mining Engineers.

Senior Class—The Theses of Messrs. *Frankel*, *Hawkins*, and *Hovey*, of the Chemical Section.

In the Faculty of Medicine for graduation theses—

MAY 2, 1887.

Distinguished Merit, to T. Passmore Berens, of Penna.

Honorable Mention, to William C. Townes, of Miss., Sven Windrufva, of Sweden, and Randall Hutchinson, of New Jersey.

The following graduates of the Medical Department, Class of 1887, were appointed to Hospitals on competitive examinations. They are alphabetically arranged:

To the University Hospital—

E. Kirby,
Leonidas Mial.
Joseph Leidy, Jr.,

To the Philadelphia Hospital—

W. A. Atlee, Jr.,
T. P. Berens,
E. T. Bradley,
J. A. Davis,
A. G. Fell,
R. Hutchinson,
A. A. Stevens, of the Class of 1885.
P. Kintzing,
J. W. Lord,
R. C. Norris,
B. F. Stahl,
G. D. Weston.

To the St. Mary's Hospital—

Jno. C. Heisler,
Fred. Lambach,
P. F. Moylan.

To the St. Joseph's Hospital—

Joseph Otto, of Class of 1886.

To the Children's Hospital—

C. F. Bowen,
W. W. Farr,
Stephen Carroll Wood,

To the Presbyterian Hospital—

P. Kintzing,
J. W. Lord.

The following were appointed to Hospitals, at which an examination is not made the basis of appointment:

To the Pennsylvania Hospital—

Walter D. Green, '86,
Harvey Shoemaker, '86,
Thomson S. Westcott, '86.

To the Episcopal Hospital—

W. T. Van Pelt, '85,
Benj. B. Reath.

Digitized by Google

To the Germantown Hospital—
L. J. C. Kimmel.

To the Harrisburg Hospital—
J. B. McAlister.

To the German Hospital—
A. D. Henkel.

In the Faculty of Dentistry, at the Examination for Degrees—
Honorable mention for averages, exceeding 90, to

Milton Powel,	Pennsylvania.
Joseph W. White,	Pennsylvania.
Oliver D. Darrell,	District of Columbia.
Wm. Frank Arnold,	New York.
Arthur F. Garesche,	Cuba.
Fay H. Deming,	Vermont.
Frederick W. Amend, Jr.,	Pennsylvania.
R. Peel Doherty,	New Brunswick.
W. Howard Johnson,	Pennsylvania.
William L. Jones, Jr.,	Pennsylvania.
Charles A. E. Codman,	Pennsylvania.
Felix J. Despecher,	France.
Charles W. Outcault,	Ohio.
Henry W. Bohn,	Pennsylvania.
Richard J. Wall,	Pennsylvania.
William F. Rehfuss,	Pennsylvania.
R. Hamill D. Swing,	Pennsylvania.
Samuel A. Pancoast,	Ohio.

PRIZES.

JUNE 8, 1887.

I. IN THE COLLEGE FACULTY—

1. For the best Essay in Intellectual and Moral Philosophy by a member of the Junior Class. Subject: "The Platonic Ideas," to *Franklin Derstine Hartzell;* with honorable mention of *Lightner Witmer.*

2. For the best examination on the "Oration of Æschines against Ctesiphon" by the members of the Junior Class, to *Horace Clark Richards.*

3. For the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents, equally to *William Wilson Barr* and *Josiah Harman Penniman*; with honorable mention of *Robert Bealle Burke.*

4. For the best examination on the "Lectures on Quaternions" given to the Voluntary Junior Class, First Prize to *Horace Clarke Richards;* Second Prize to *Theodore William Kretschmann.*

5. A prize of twenty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: "The Irish Union of 1801," to *Joseph Siegmund Levin.*

Digitized by Google

6. For the best Declamation by a member of the Sophomore Class, equally to *Daniel Bussier Shumway* and *Robert Stulb;* with honorable mention of *Oscar Pearl Chamberlain* and *Rudolph Howard Klauder.*

7. For the best special examinations in the Elements of Latin Prose Composition by Freshmen on entering College, Second Prize to *William Wilson Barr, Jr.*

8. For the best special examinations in Greek Prose Composition by Freshmen on entering College, First Prize to *William Wilson Barr, Jr.;* Second Prize equally to *Henry Riley Gummey* and *Robert McClellan Ramsey.*

9. To a member of the Scientific Classes for improvement in Drawing and general good conduct and application, to *Frank Richards Ford* of the Freshman Class.

10. The Henry Reed Prize, founded by the Alumni of the University for the best English Essay by a member of the Senior Class. Subject: "The Love of Nature as an Element in Poetry, considered especially in regard to the English Literature of the Eighteenth Century," to *Oliver Huckel.*

II. The Society of the Alumni Prizes—

1. For the best Latin Essay by a member of the Graduating Class, to *William Romaine Newbold* for his essay "De libris quinque notissimis Boetii."

2. For the best Original Declamation by a member of the Junior Class, to *Lightner Witmer,* with honorable mention of *Theodore William Kretschmann* and *Horace Clark Richards.*

III. The Henry La Barre Jayne Prize for the best English Composition by a member of the Freshman Class, to *William Henry Lloyd, Jr.,* with honorable mention of *William Wilson Barr, Jr.,* for their Essays on "Hugh Swinton Legaré."

IV. The Joseph Warner Yardley Prize, founded by the Class of 1877, in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class, to *George Flowers Stradling,* for his Essay on "Profit Sharing as a Solution of the Labor Problem."

II. In the Faculty of Law—

1. The Sharswood Prize to *William M. Smithers.*

2. The Meredith Prize to *Robert Hunter McGrath, Jr.*

3. The Faculty Prize for the best written examination with all the Professors, to *Harry F. Stitzell,* of the Junior Class.

III. In the Faculty of Biology—

The Junior Prize for the best dissected preparations, Second Prize, to *George G. Ross,* with honorable mention to *Charles F. Nassau.*

Digitized by Google

MAY 2, 1887.

V. BY THE FACULTY OF MEDICINE—

The "*Medical News Prize*" of One Hundred Dollars for sufficiently meritorious thesis was divided between *Arthur C. Hugenschmidt* for his thesis, entitled Experimental studies upon Men, of the action of Hyoscine Hydrobromate, Nitroglycerine, Hydrocyanic Acid, etc., and *Peter J. J. Moylan* for his thesis on the Physiological action of Antipyretics.

The following prizes were awarded by Dr. J. Wm. White, Demonstrator of Surgery. For proficiency in Operating and Bandaging, a copy of Agnew's Surgery to *Joseph Head* and a Surgical pocket case to *Joseph Leidy, Jr.*

A third prize for proficiency in Operating and Bandaging offered by the J. B. Lippincott Co., a copy of Agnew's Surgery to *Sven Windrufva.*

By Dr. John B. Deaver, Demonstrator of Anatomy, for the best record of Anomalies found in the Dissecting Room, a pocket case to *Henry W. Cattell.*

By the Professor of Hygiene, Dr. N. Archer Randolph, for the best examination in Hygiene, a prize of a Zentmayer Histological Microscope to *Samuel M. Wilson*, of the first year.

For proficiency in Bandaging by a student of the first year, the prize of a copy of Agnew's Surgery by the J. B. Lippincott Co.

Digitized by Google

SUMMARY.

Professors, Lecturers and Instructors.

College Department,	47	
Department of Medicine, including Hospital Service,	63	
" " " (Auxiliary Faculty),	5	
" " Dentistry,	30	
" " Veterinary Medicine,	15	
" " Law,	5	
" " Philosophy,	18	
" " Biology,	9	
Emeritus Professors,	6	
		198
Repeated,		46
Total,		152

Students.

College Department,	324	
Department of Medicine,	435	
" " " (Auxiliary Faculty),	10	
" " Dentistry,	123	
" " Veterinary Medicine,	57	
" " Law,	149	
" " Philosophy,	54	
" " Biology (excluding College Department),	30	
Post-Graduate Course in Law,	11	
		1193
Repeated,		6
Total,		1187

Digitized by Google

CONTENTS.

	Page.
Ground Plan of the University.—The Buildings and Property,	3
Calendar,	4–6
University of Pennsylvania,	7–13
Historical Sketch of the Foundation of the University; the several Charters and Acts of Assembly regulating its government,	7–12
Departments of the University,	13
Trustees,	14–15
Chairmen of Standing Committees,	15
Officers,	16–23
College Department,	24–64
Faculty,	24–25
Instructors,	25
Graduates,	26
Post-Seniors,	26
Undergraduates,	26–33
Seniors,	26–27
Juniors,	27–29
Sophomores,	29–30
Freshmen,	30–31
Course in Music,	31–32
Special Students,	32
Partial Students,	32–33
Subdivision of Faculty and Courses,	34
Degrees,	34–35
Public Lectures,	35
Fees,	35
College Guardianship,	35
Scholarships,	35–36
Annual Examinations,	36
Prizes,	36–38
Societies,	38–39
The Course in Arts,	39–44
Entrance Examination,	39–40

Digitized by Google

Course of Study, ... 40–43
Freshman Class, ... 40
Sophomore Class, ... 40–41
Junior Class, ... 41–42
Senior Class, ... 42–43
Special and Partial Courses, ... 43
Degrees, ... 44
The Courses in the Towne Scientific School, ... 44–56
Object, Studies and Courses, ... 44–52
Entrance Examinations, ... 44–46
Course of Study, ... 46–47
Freshman Class, ... 46
Sophomore Class, ... 46–47
Technical Courses, ... 47–52
Junior Class, ... 47–48
Studies pursued by the Whole Class, ... 47
1. Studies pursued by the Chemical Section, . . . 47
2. Studies pursued by the Metallurgical and Mining Section, ... 47
3. Studies pursued by the Civil Engineering Section, ... 48
4. Studies pursued by the Dynamical Engineering Section, ... 48
5. Studies pursued by the Architectural Section, . 48
Senior Class, ... 48–51
Studies pursued by the Whole Class, ... 48–49
1. Studies pursued by the Chemical Section, . . . 49
2. Studies pursued by the Metallurgical and Mining Section, ... 49–50
3. Studies pursued by the Civil Engineering Section, ... 50
4. Studies pursued by the Dynamical Engineering Section, ... 50
5. Studies pursued by the Architectural and Drawing Section, ... 50–51
Post-Senior Class, ... 51–52
Studies pursued by the Whole Class, ... 51
1. Studies pursued by the Chemical Section, . . . 51
2. Studies pursued by the Metallurgical and Mining Section, ... 51
3. Studies pursued by the Civil Engineering Section, ... 51–52

Digitized by Google

4. Studies pursued by the Dynamical Engineering Section, ... 52
5. Studies pursued by the Architectural and Drawing Section, ... 52
Methods of Study, ... 53–55
Special Courses, ... 55
Library, ... 55
Degrees, ... 55–56
A Course in Philosophy for Undergraduates, ... 56–60
Course of Instruction, ... 56
Entrance Examinations, ... 56
Course of Study, ... 56–59
Freshmen Class, ... 56–57
Sophomore Class, ... 57
Junior Class, ... 57–59
Senior Class, ... 58–59
Mode of Instruction, ... 59–60
Degrees, ... 60
The Course in Finance and Economy in the Wharton School, . . 60–64
Aim and Scope of School, ... 60–61
Library, ... 61
Course of Study, ... 61–62
Junior Class, ... 61–62
Senior Class, ... 62
Mode of Instruction, ... 63
Supplementary Lectures, ... 63
Examinations for Admission and Advanced Standing, . . 64
Degrees, ... 64
The Course in Music, ... 65
DEPARTMENT OF MEDICINE, ... 67-104
Faculty, ... 67
Clinical Professors, ... 67
Assistant Professor, ... 68
Auxiliary Professors, ... 68
Lecturers and Demonstrators, ... 68–70
Hospital Staff, ... 70–71
Dispensary Service, ... 71–72
Matriculates, ... 73–83
Fourth Year, ... 73
Third Year, ... 73–76
Second Year, ... 76–79
First Year, ... 80–82

Digitized by Google

Special Students, ... 82–83
Organization of the School, ... 83–84
Admission, ... 84–85
Course of Study, ... 85–86
Outline of the Course, ... 86–88
First Year, ... 86
Second Year, ... 86–87
Third Year, ... 87
Fourth Year, ... 87–88
Text-Books, ... 88–89
Order of Lectures, Daily, ... 90–93
First Year, ... 90
Second Year, ... 91
Third Year, ... 92
Fourth Year, ... 93
Roster of Bedside Instruction and Special Clinics for Students of the Third Year, Session 1887–88, ... 94–95
Special Roster of Laboratory Instruction in Histology, Biology, Osteology, and Syndesmology, for students of the First year, Session 1887–88, ... 95
Graduation, ... 95–96
Additional Instruction, ... 96
Arrangement of Sessions, ... 96
Expenses, ... 96–98
Scholarships, ... 98
Facilities for Instruction, ... 98–100
The Laboratory Building, ... 101–102
The University Hospital, ... 102
Other Hospitals and Hospital Clinics, ... 102–103
Medical Societies, ... 103
Prizes, ... 103
Society of the Alumni, ... 104
Officers for 1887, ... 104
AUXILIARY DEPARTMENT OF MEDICINE, ... 105–109
Faculty, ... 105
Matriculates, ... 105
Purpose of Department, ... 105
Fees, ... 106
Degrees, ... 106
Special Students, ... 106
Prizes, ... 106
Museum, ... 106–107

Digitized by Google

Course of Study, ... 107–109
Text-Books and Works of Reference, ... 108–109
HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, ... 110–112
Board of Managers and Chairmen of Standing Committees, 110
Capacity and General Regulations, ... 111–112
DEPARTMENT OF DENTISTRY, ... 113–124
Faculty, ... 113
Clinical Instructors, ... 113
Demonstrators, ... 113–114
Matriculates, ... 114–117
Second Year, ... 114–115
First Year, ... 115–117
Special Students, ... 117
Course of Study, ... 117–119
First Year, ... 118
Second Year, ... 118
Course of Instruction, ... 119–120
Clinical Instruction, ... 120
Infirmary and Laboratory, ... 121–122
The Stillé Medical Library, ... 121
Museum and Cabinets, ... 121
Sessions, ... 121
Examinations, ... 121–122
Degrees, ... 122
Text-Books and Works of Reference, ... 122–123
Expenses, ... 123
Operative Department, ... 123–124
Mechanical Department, ... 124
DEPARTMENT OF VETERINARY MEDICINE, ... 125–137
Faculty, ... 125
Demonstrators, ... 125
Matriculates, ... 126–127
Third Year, ... 126
Second Year, ... 126
First Year, ... 126–127
Special Students, ... 127
Aim and Facilities of the Department, ... 127
Requisites for Admission, ... 127–128
Course of Instruction, ... 128
Chemistry, ... 128–129
Materia Medica and Pharmacy, ... 129
Physiology, ... 129–130

Digitized by Google

Botany, ... 130
Zoölogy, ... 130–131
Anatomy, ... 131
Histology, ... 131
Forging, ... 131–132
Therapeutics, ... 132
General Pathology and Morbid Anatomy, ... 132
Internal Pathology and Contagious Diseases, ... 132–134
Obstetrics, ... 134
Zoötechnics and Hygiene, ... 135
Museum, ... 135
Hospital, ... 135
Farriery, ... 135
Examinations and Degrees, ... 136
Fees, ... 136
Hospital, ... 136–137
Department of Biology, ... 138–143
Faculty, ... 138
Matriculates, ... 138–139
Second Year, ... 138
First Year, ... 138–139
Aim and Facilities of the Department, ... 139–141
General Course in Biology, ... 140
First Year, ... 140
Second Year, ... 140–141
Mode of Instruction, ... 141–142
Course for Students in the College Department, ... 142
Instruction for Graduate Students, ... 142
Investigation and Advanced Instruction, ... 142
Prizes, ... 142
Fees, ... 143
Admissions, Examinations and Degrees, ... 143
Department of Law, ... 144–152
Faculty, ... 144
Matriculates, ... 144–147
Senior Class, ... 144–145
Junior Class, ... 145–147
Special Students, ... 147
Course of Study, ... 147–148
Fees, ... 148–149
Examinations and Degrees, ... 149
Prizes, ... 150

Digitized by Google

Admission to the Bar, ... 150–151
Examination Questions, May, 1887, ... 151–152
By Professor Hare, ... 151
" " Parsons, ... 151–152
" " Bispham, ... 152
" Mr. Ralston, ... 152
DEPARTMENT OF PHILOSOPHY, ... 153–159
Faculty, ... 153
Matriculates, ... 153–154
Object of Department, ... 155
Course of Study, ... 155
Degrees, ... 155–156
Fees, ... 156
Post-Graduate Course in Law, ... 156–159
Matriculates, ... 156
Aim of the Course, ... 156–158
Course of Study, ... 158–159
Admission and Fees, ... 159
Examinations and Degrees, ... 159
DEPARTMENT OF PHYSICAL EDUCATION, ... 160–161
LIBRARY, ... 162–163
CENTRAL COMMITTEE OF THE ALUMNI, ... 164–165
FEES AND EXPENSES, ... 166–170
Tuition Fees, ... 166
Graduation Fee, ... 166
Certificate Fee, ... 166
College Department, ... 167
Medical Department, ... 167–168
Auxiliary Department of Medicine, ... 169
Department of Dentistry, ... 169
Department of Biology, ... 169
Department of Veterinary Medicine, ... 170
Department of Law, ... 170
Department of Philosophy, ... 170
Post-Graduate Course of Law, ... 170
Accommodations, ... 170
Expenses, ... 170
DEGREES, HONORS, AND PRIZES, 1886–87, ... 171–182
Honorary Degrees, ... 171
Degrees in Course—Certificates, ... 171–177
Honors, ... 178–180
Prizes, ... 180–182
Summary, ... 183

Digitized by Google

Digitized by Google

Digitized by Google

UNIVERSITY

OF

PENNSYLVANIA

Catalogue and Announcements

1888-89

PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1888

Digitized by Google

Digitized by Google

UNIVERSITY

OF

PENNSYLVANIA

Catalogue and Announcements

1888-89

PHILADELPHIA
PRINTED FOR THE UNIVERSITY
1888

Digitized by Google

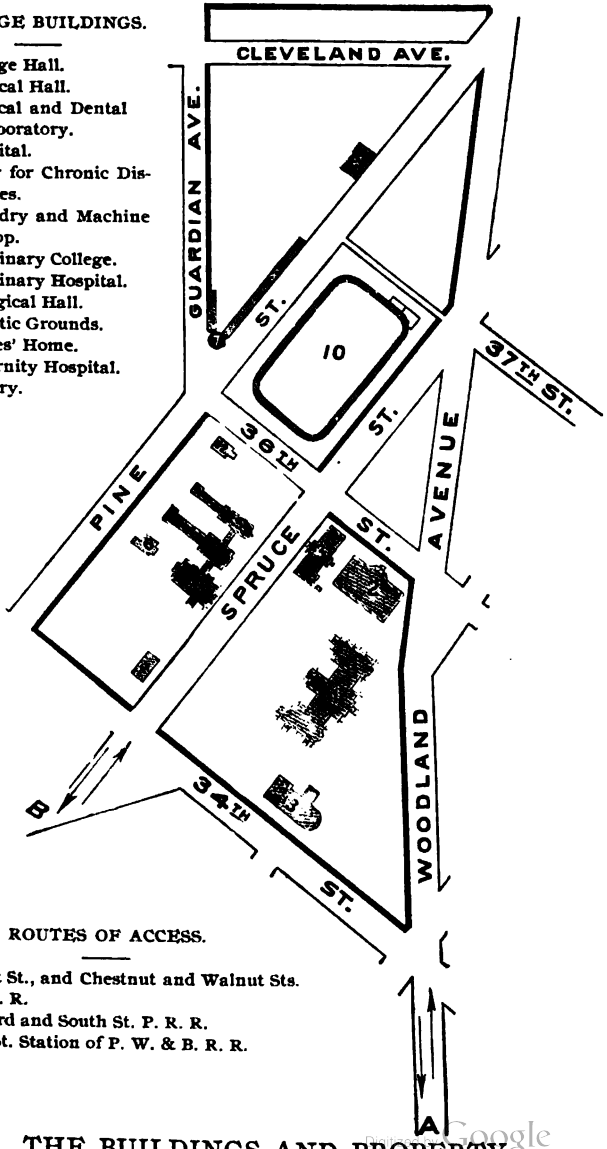
Press of GLOBE PRINTING HOUSE, Philadelphia.

Digitized by Google

GROUND PLAN OF THE UNIVERSITY.

COLLEGE BUILDINGS.

1. College Hall.
2. Medical Hall.
3. Medical and Dental Laboratory.
4. Hospital.
5. Wing for Chronic Diseases.
6. Laundry and Machine Shop.
7. Veterinary College.
8. Veterinary Hospital.
9. Biological Hall.
10. Athletic Grounds.
11. Nurses' Home.
12. Maternity Hospital.
13. Library.



ROUTES OF ACCESS.

A Market St., and Chestnut and Walnut Sts. P. R. R.
B Lombard and South St. P. R. R. South St. Station of P. W. & B. R. R.

THE BUILDINGS AND PROPERTY.

Digitized by Google

1889.

JANUARY.

S	·	6	13	20	27
M	·	7	14	21	28
T	1	8	15	22	29
W	2	9	16	23	30
T	3	10	17	24	31
F	4	11	18	25	·
S	5	12	19	26	·

FEBRUARY.

S	·	3	10	17	24
M	·	4	11	18	25
T	·	5	12	19	26
W	·	6	13	20	27
T	·	7	14	21	28
F	1	8	15	22	·
S	2	9	16	23	·

MARCH.

S	·	3	10	17	24	31
M	·	4	11	18	25	·
T	·	5	12	19	26	·
W	·	6	13	20	27	·
T	·	7	14	21	28	·
F	1	8	15	22	29	·
S	2	9	16	23	30	·

APRIL.

S	·	7	14	21	28
M	1	8	15	22	29
T	2	9	16	23	30
W	3	10	17	24	·
T	4	11	18	25	·
F	5	12	19	26	·
S	6	13	20	27	·

MAY.

S	·	5	12	19	26
M	·	6	13	20	27
T	·	7	14	21	28
W	1	8	15	22	29
T	2	9	16	23	30
F	3	10	17	24	31
S	4	11	18	25	·

JUNE.

S	·	2	9	16	23	30
M	·	3	10	17	24	·
T	·	4	11	18	25	·
W	·	5	12	19	26	·
T	·	6	13	20	27	·
F	·	7	14	21	28	·
S	1	8	15	22	29	·

1889.

JULY.

S	·	7	14	21	28	
M	1	8	15	22	29	
T	2	9	16	23	30	
W	3	10	17	24	31	
T	4	11	18	25	·	
F	5	12	19	26	·	
S	6	13	20	27	·	

AUGUST.

S	·	4	11	18	25	
M	·	5	12	19	26	
T	·	6	13	20	27	
W	·	7	14	21	28	
T	1	8	15	22	29	
F	2	9	16	23	30	
S	3	10	17	24	31	

SEPTEMBER.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	·	
W	4	11	18	25	·	
T	5	12	19	26	·	
F	6	13	20	27	·	
S	7	14	21	28	·	

OCTOBER.

S	·	6	13	20	27	
M	·	7	14	21	28	
T	1	8	15	22	29	
W	2	9	16	23	30	
T	3	10	17	24	31	
F	4	11	18	25	·	
S	5	12	19	26	·	

NOVEMBER.

S	·	3	10	17	24	
M	·	4	11	18	25	
T	·	5	12	19	26	
W	·	6	13	20	27	
T	·	7	14	21	28	
F	1	8	15	22	29	
S	2	9	16	23	30	

DECEMBER.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	31	
W	4	11	18	25	·	
T	5	12	19	26	·	
F	6	13	20	27	·	
S	7	14	21	28	·	

1890.

JANUARY.

S	·	5	12	19	26	
M	·	6	13	20	27	
T	·	7	14	21	28	
W	1	8	15	22	29	
T	2	9	16	23	30	
F	3	10	17	24	31	
S	4	11	18	25	·	

FEBRUARY.

S	·	2	9	16	23	
M	·	3	10	17	24	
T	·	4	11	18	25	
W	·	5	12	19	26	
T	·	6	13	20	27	
F	·	7	14	21	28	
S	1	8	15	22	·	

MARCH.

S	·	2	9	16	23	30
M	·	3	10	17	24	31
T	·	4	11	18	25	·
W	·	5	12	19	26	·
T	·	6	13	20	27	·
F	·	7	14	21	28	·
S	1	8	15	22	29	·

APRIL.

S	·	6	13	20	27	
M	·	7	14	21	28	
T	1	8	15	22	29	
W	2	9	16	23	30	
T	3	10	17	24	·	
F	4	11	18	25	·	
S	5	12	19	26	·	

MAY.

S	·	4	11	18	25	
M	·	5	12	19	26	
T	·	6	13	20	27	
W	·	7	14	21	28	
T	1	8	15	22	29	
F	2	9	16	23	30	
S	3	10	17	24	31	

JUNE.

S	1	8	15	22	29	
M	2	9	16	23	30	
T	3	10	17	24	·	
W	4	11	18	25	·	
T	5	12	19	26	·	
F	6	13	20	27	·	
S	7	14	21	28	·	

Digitized by Google

CALENDAR.

1888.

Sept.	17, Monday.	Introductory Course begins: Departments of Medicine and Dentistry. 11 A.M.
"	20, Thursday.	First Term begins: College Department. 10 A.M.
Oct.	1, Monday.	Winter Session begins: Departments of Medicine, Dentistry, Veterinary Medicine, and Biology, and Auxiliary Department of Medicine. 12 Noon.
"	1, Monday.	First Term begins: Course in Music. 2 P.M.
"	1, Monday.	First Term begins: Department of Law. 4 P.M.
Nov.	29, Thursday.	Thanksgiving Day. (With Friday, 30th, holiday.)
Dec.	21, Friday.	Christmas Recess begins: College Department and Department of Biology. 5 P.M.
"	22, Saturday.	Christmas Recess begins: Departments of Medicine, etc. 5.30 P.M.

1889. CHRISTMAS RECESS.

Jan.	3, Thursday.	Christmas Recess ends. 9 A.M.
"	31, Thursday.	First Term ends: College Department (Chapel at 10 A.M.) and Departments of Biology and Law.
Feb.	1, Friday.	Second Term begins: College Department and Departments of Biology and Law.
"	22, Friday.	Washington's Birthday. Celebration in College Chapel, 10 A.M.
April	15, Monday.	Final and Term Examinations begin: Departments of Medicine and Dentistry.
"	17, Wednesday.	Easter Recess begins: College Department and Department of Biology. 5 P.M.

EASTER RECESS.

April	19, Friday.	Good Friday. (Legal Holiday.)
"	23, Tuesday.	Examination for Resident Physicians, University Hospital. 12 Noon.
"	24, Wednesday.	Easter Recess ends: College Department and Department of Biology. 9 A.M.
May	1, Wednesday.	Annual Commencement: Departments of Medicine and Dentistry. 12 Noon.
"	2, Thursday.	Spring Session begins: Department of Dentistry.
"	4, Saturday.	Senior Examinations end: College Department.

Digitized by Google

May	6, Monday.	Spring Session begins: Department of Medicine. 11 A.M. Entrance Examination, Department of Medicine.
"	20, Monday.	Examinations begin: Departments of Law and Veterinary Medicine, and Auxiliary Department of Medicine.
"	31, Friday.	Second Term ends: Department of Law.
June	3, Monday.	Announcement of Results, Annual Examinations: College Department. 10 A.M.
"	5, Wednesday.	Annual Commencement: College Department, Departments of Law, Biology, and Veterinary Medicine, and Auxiliary Department of Medicine. 11 A.M.
"	6, Thursday.	Entrance Examinations begin: College Department. 9 A.M.
		SUMMER VACATION.
Sept.	12, Thursday.	Entrance Examinations begin: College Department. 9 A.M.
"	18, Wednesday.	Introductory Course begins: Departments of Medicine and Dentistry. 11 A.M.
"	23, Monday.	First Term begins: College Department and Department of Biology. 10 A.M.
"	25, Wednesday.	Competitive Examination for Medical Scholarships. 12 Noon.
"	26, Thursday.	Examinations for Admission to Advanced Standing and Re-examinations of Undergraduates: Departments of Medicine and Dentistry. 12 Noon.
"	27, Friday.	Entrance Examination: Departments of Medicine and Veterinary Medicine. 12 Noon.
Oct.	1, Tuesday.	Winter Session begins: Departments of Medicine, Dentistry, and Veterinary Medicine, and Auxiliary Department of Medicine. 12 Noon.
"	1, Tuesday.	First Term begins: Course in Music. 2 P.M.
"	7, Monday.	First Term begins: Department of Law. 4 P.M.
Nov.	28, Thursday.	Thanksgiving Day (with Friday, 29th, holiday).
Dec.	20, Friday.	Christmas Recess begins: Department of Law.
"	23, Monday.	Christmas Recess begins: College Department and Department of Biology. 5 P.M.
	1890	CHRISTMAS RECESS.
Jan.	2, Thursday.	Christmas Recess ends: Department of Law.
"	3, Friday.	Christmas Recess ends: College Department and Department of Biology. 9 A.M.
"	31, Friday.	First Term ends: College Department (Chapel at 10 A.M.), and Departments of Biology and Law.

Digitized by Google

University of Pennsylvania.

A pamphlet, called: *Proposals Relative to the Education of Youth in Pennsylvania*, written in 1749 by Dr. FRANKLIN, led to an association, by certain citizens of Philadelphia, for the purpose of founding a School on the lines suggested by that wise counsellor. Over two thousand pounds, equivalent to at least forty thousand dollars at the present time, were raised; a building, which had been erected to accommodate the thronged congregations of the celebrated Whitfield, was purchased; and in 1751 the Academy, consisting of an English, a Mathematical, and a Latin School, each under a Master, with subordinate tutors and ushers, was formally opened. So successful was the undertaking that in two years the Trustees applied to the Proprietaries for a Charter, which was thus granted:—

THOMAS PENN and RICHARD PENN, true and absolute proprietors and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent, and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox,

Digitized by Google

William Plumsted, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other neccessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favouring such pious, useful, generous, and charitable designs, hoping, through the favour of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particulary suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do* for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others, as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania. . . . . .

In witness whereof, we have caused these our letters to be made

Digitized by Google

patent; in the twenty-seventh year of the reign of our sovereign lord, George the second, who now is king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-three."

Under the skilful training of the learned Rev. William Smith the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring Collegiate Degrees. The petition was granted substantially as follows:

Thomas Penn and Richard Penn, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting:

And whereas the said trustees have, ... represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well-constituted seminaries, youth are entitled to their first *degree. Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, ... to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and the English tongue, which Provost, Vice-Provost, and Professors, so constituted and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania;* and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and chari-

Digitized by Google

table school: *Provided always*, That the said trustees, the Provost and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. . . . . excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania, to qualify them for the excercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties above mentioned, any thing in this provision to the contrary notwithstanding . . . . . *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M.A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M.A., to be the first and present Vice-Provost of the same. . . . . *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, ... to admit any the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the

Digitized by Google

kingdom of Great Britain. . . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy . . . . .

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five.

The First Commencement was held May 17th, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times that followed, during the wars with the French, the Provost, Mr. Smith, opposed so vehemently the non-resistance policy of the Legislature of Pennsylvania, that by an arbitrary stretch of power he was thrown into prison. In faithfulness to his duties as Provost, however, he received his classes in gaol, and continued his instructions to them there while still a prisoner. Finally he was set at liberty, for the purpose of going to England to make a personal appeal to the king, and his kindly reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bestead they sent him back to England to raise funds for an endowment. It happened that King's College (now Columbia) in New York was in similar straits and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them," and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all churches, and succeeded in raising a very considerable endowment for each college.

Digitized by Google

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler, D.D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the provost's, collection in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion. It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind, and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied."

A committee having been appointed to frame a fundamental *Resolve* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein

Digitized by Google

contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present *wide* and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the church of England, or those dissenting from them (*in any future election to the principal offices mentioned in the aforesaid letter*), be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College in the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follows:

First. That the name of the institution be "*The University of Pennsylvania*," and that it be stationed in the city of Philadelphia.

Second. That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the university of Pennsylvania; and that the governor shall be president.

SECT. 2. *And be it further enacted*, That the said twenty-four

Digitized by Google

persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance for ever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said university shall at all times be stationed in the city of Philadelphia.

Thus established, the University has advanced with the times, and now comprises the following departments :—

THE COLLEGE DEPARTMENT, including
- THE COURSE IN ARTS,
- THE COURSE IN SCIENCE,
  - (The Towne Scientific School),
- THE COURSE IN PHILOSOPHY FOR UNDERGRADUATES,
- THE COURSE IN FINANCE AND ECONOMY,
  - (The Wharton School),
- THE COURSE IN MUSIC.

THE DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF LAW.
THE AUXILIARY DEPARTMENT OF MEDICINE.
THE DEPARTMENT OF DENTISTRY.
THE DEPARTMENT OF PHILOSOPHY.
THE DEPARTMENT OF VETERINARY MEDICINE.
THE DEPARTMENT OF BIOLOGY.
THE DEPARTMENT OF PHYSICAL EDUCATION.

Digitized by Google

PROVOST OF THE UNIVERSITY,

WILLIAM PEPPER, M.D., LL.D.,

President *pro tempore* of the Board of Trustees.

TRUSTEES.

THE GOVERNOR OF PENNSYLVANIA, *ex-officio* President of the Board.
REV. HENRY J. MORTON, D.D.,
FREDERICK FRALEY, LL.D.,
REV. CHARLES W. SCHAEFFER, D.D., LL.D.,
WILLIAM SELLERS,
J. VAUGHAN MERRICK,
RICHARD WOOD,
S. WEIR MITCHELL, M.D., LL.D.,
CHARLES C. HARRISON,
JAMES H. HUTCHINSON, M.D.,
REV. GEORGE DANA BOARDMAN, D.D.,
WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.,
WHARTON BARKER,
SAMUEL DICKSON,
JOHN SCOTT,
JAMES MACALISTER,
JOHN C. SIMS, JR.,
HENRY H. HOUSTON,
JOSEPH D. POTTS,
HON. HENRY REED,
SAMUEL W. PENNYPACKER,
RT. REV. OZI WILLIAM WHITAKER, D.D.,
JOHN BARNARD GEST.

REV. JESSE Y. BURK, Secretary, University.
WHARTON BARKER, Treasurer, 125 South 4th St.

Digitized by Google

CHAIRMEN OF STANDING COMMITTEES FOR THE YEAR 1888–89.

WAYS AND MEANS:

MR. HARRISON, ... 101 South Front Street.

BUILDINGS, ESTATES AND PROPERTY:

MR. WOOD, ... 400 Chestnut Street.

LIBRARY:

DR. FURNESS, ... 222 West Washington Square.

DEPARTMENT OF ARTS:

MR. FRALEY, ... 1000 Walnut Street.

DEPARTMENT OF MEDICINE:

DR. MITCHELL, ... 1524 Walnut Street.

DEPARTMENT OF LAW:

MR. SCOTT, ... 3808 Chestnut Street.

DEPARTMENT OF SCIENCE:

MR. MERRICK, ... Roxboro'.

DEPARTMENT OF FINANCE AND ECONOMY:

MR. BARKER, ... 125 South Fourth Street.

DEPARTMENT OF VETERINARY MEDICINE:

DR. HUNT, ... 1300 Spruce Street.

DEPARTMENT OF PHYSICAL EDUCATION:

MR. DICKSON, ... 32 South 3d Street.

DEPARTMENT OF BIOLOGY:

MR. MERRICK, ... Roxboro'.

Digitized by Google

OFFICERS.*

	Residence.
WILLIAM PEPPER, M.D., LL.D., PROVOST OF THE UNIVERSITY.	1811 Spruce St.
E. OTIS KENDALL, LL.D., VICE-PROVOST.	3826 Locust St.
JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.	1302 Filbert St.
HENRY H. SMITH, M.D., Emeritus Professor of Surgery.	1800 Spruce St.
FRANCIS A. JACKSON, A.M., Professor of the Latin Language and Literature.	Overbrook, Pa.
E. OTIS KENDALL, LL.D., THOMAS A. SCOTT Professor of Mathematics.	3826 Locust St.
J. PETER LESLEY, LL.D., Emeritus Professor of Geology and Mining.	1008 Clinton St.
RICHARD A. F. PENROSE, M.D., LL.D., Emeritus Professor of Obstetrics and of the Diseases of Women and Children.	1331 Spruce St.
ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the Theory and Practice of Medicine and of Clinical Medicine.	3900 Spruce St.
HARRISON ALLEN, M.D., Emeritus Professor of Physiology.	1933 Chestnut St.
HORATIO C. WOOD, M.D.. LL.D., Professor of Materia Medica, Pharmacy and General Therapeutics, and Clinical Professor of Nervous Diseases.	1925 Chestnut St.
JOHN J. REESE, M.D., Professor of Medical Jurisprudence, including Toxicology.	Landsdowne, Pa.
CHARLES J. STILLÉ, LL.D., Emeritus JOHN WELSH CENTENNIAL Professor of History and English Literature.	2201 St. James's Place.

* Arranged, except Provost and Vice-Provost, in order of accession to office.

Digitized by Google

OSWALD SEIDENSTICKER, PH.D. (Göttingen), Litt.D.,
Professor of the German Language and Literature. 309 S. 40th St.

JOHN G. R. McELROY, A.M.,
Professor of Rhetoric and the English Language. 115 S. 20th St.

J. I. CLARK HARE, LL.D.,
Professor of the Institutes of Law, including, inter alia, International, Constitutional, Commercial and Civil Law. 118 S. 22d St.

D. HAYES AGNEW, M.D., LL.D.,
JOHN RHEA BARTON Professor of Surgery, and Professor of Clinical Surgery. 1601 Walnut St.

REV. ROBERT ELLIS THOMPSON, D.D.,
JOHN WELSH CENTENNIAL Professor of History and English Literature. Wyncote P. O.

SAMUEL B. HOWELL, M.D.,
Professor of Mineralogy and Geology. 1513 Green St.

GEORGE F. BARKER, PH.B., M.D.,
Professor of Physics. 3909 Locust St.

LEWIS M. HAUPT, A.M., C.E.,
Professor of Civil Engineering. 107 N. 35th St.

WILLIAM PEPPER, M.D., LL.D.,
Professor of the Theory and Practice of Medicine and of Clinical Medicine. 1811 Spruce St.

WILLIAM GOODELL, M.D.,
Professor of Gynæcology. 1418 Spruce St.

WILLIAM F. NORRIS, M.D.,
Honorary Professor of Ophthalmology, and Clinical Professor of Diseases of the Eye. 1526 Locust St.

GEORGE STRAWBRIDGE, M.D.,
Clinical Professor of Diseases of the Ear. 1500 Walnut St.

JAMES PARSONS, A.M.,
Professor of the Law of Personal Relations and Personal Property. 1534 Locust St.

THOMAS W. RICHARDS, A.M.,
Professor of Drawing and Architecture. 4812 Fairmount Ave.

GEORGE A. KŒNIG, PH.D. (Heidelberg),
Professor of Mineralogy and Metallurgy. 3207 Summer St.

SAMUEL P. SADTLER, PH.D. (Göttingen),
Professor of Organic and Industrial Chemistry. 204 N. 34th St.

JAMES TYSON, M.D.,
Professor of General Pathology and Morbid Anatomy. 1506 Spruce St.

LOUIS A. DUHRING, M.D.,
Clinical Professor of Skin Diseases. 1417 Spruce St.

Digitized by Google

HUGH A. CLARKE, MUS. DOC.,
Professor of the Science of Music. 223 S. 38th St.

JOSEPH T. ROTHROCK, B.S., M.D.,
Professor of Botany. West Chester, Pa.

WILLIAM D. MARKS, PH.B., C.E.,
WHITNEY Professor of Dynamical Engineering. 4304 Walnut St.

THEODORE G. WORMLEY, M.D., LL.D.,
Professor of Chemistry and Toxicology. 1409 Spruce St.

JOHN ASHHURST, JR., M.D.,
Professor of Clinical Surgery. 2000 W. De Lancey Place.

OTIS H. KENDALL, PH.D.,
Assistant Professor of Mathematics. 3826 Locust St.

CHARLES J. ESSIG, M.D., D.D.S.,
Professor of Mechanical Dentistry and Metallurgy. 1700 Locust St.

EDWIN T. DARBY, M.D., D.D.S.,
Professor of Operative Dentistry and Dental Histology. 1513 Walnut St.

MORTON W. EASTON, PH.D. (Yale),
Professor of Comparative Philology, and Adjunct Professor of Greek. 224 S. 43d St.

JAMES TRUMAN, D.D.S.,
Professor of Dental Pathology, Therapeutics and Materia Medica. 3249 Chestnut St.

RUSH SHIPPEN HUIDEKOPER, M.D., VETERINARIAN (Alfort), Professor of Veterinary Anatomy and Pathology. 111 S. 20th St.

EDMUND J. JAMES, PH.D. (Halle),
Professor of Finance and Administration. 3722 Locust St.

JOHN BACH McMASTER, A.M.,
Professor of American History. Highland Ave., Chestnut Hill.

GEORGE TUCKER BISPHAM, A.M.,
Professor of Equity Jurisprudence. 402 Walnut St.

ROBERT MEADE SMITH, MD.,
Professor of Comparative Physiology. 332 S. 21st St.

HORACE JAYNE, M.D.,
Professor of Vertebrate Morphology. 1826 Chestnut St.

WILLIAM OSLER, M.D.,
Professor of Clinical Medicine. 1502 Walnut St.

EDWARD T. BRUEN, M.D.,
Assistant Professor of Physical Diagnosis. 1814 Rittenhouse Sq.

LOUIS STARR, M.D.,
Clinical Professor of Diseases of Children. 1922 Spruce St.

Digitized by Google

WILLIAM L. ZUILL, M.D., D.V.S.,
Professor of Surgical Pathology. 1526 Race St.

REV. GEORGE S. FULLERTON, A.M., B.D.,
ADAM SEYBERT Professor of Intellectual and Moral Philosophy. 4116 Spruce St.

EDWARD T. REICHERT, M.D.,
Professor of Physiology. W. Springfield Ave., Chestnut Hill.

J. WILLIAM WHITE, M.D.,
Clinical Professor of Genito-Urinary Diseases, Demonstrator of Surgery, and Assistant Surgeon in University Hospital. 1810 Rittenhouse Square.

REV. JOHN P. PETERS, PH.D.,
Professor of Hebrew. 4408 Chestnut St.

JOHN A. RYDER, PH.D.,
Professor of Comparative Embryology. 1802 N. 23d St.

DANIEL G. BRINTON, M.D.,
Professor of American Archæology and Linguistics. Media, Pa.

REV. HERMANN V. HILPRECHT, PH.D. (Leipzig),
Professor of Assyrian, and Curator of Babylonian Antiquities. 1031 Walnut St.

MORRIS JASTROW, JR., PH.D. (Leipzig),
Professor of Arabic and Rabbinical Literature. 925 N. 8th St.

WILLIAM POWELL WILSON, Sc.D.,
Professor of the Anatomy and Physiology of Plants. 640 N. 32d St.

GREGORY B. KEEN, A.M.,
Librarian. 3237 Chestnut St.

C. STUART PATTERSON, A.M.,
Professor of the Law of Real Estate and Conveyancing. 38 S. 3d St.

A. SYDNEY BIDDLE, A.M.,
Professor of Practice, Pleading and Evidence at Law and of Criminal Law. 208 S. 5th St.

SAMUEL G. DIXON, M.D.,
Professor of Hygiene. 58th St. and Elmwood Ave.

HENRY W. SPANGLER, Assistant Engineer U.S.N.,
Assistant Professor of Dynamical Engineering. 603 S. 42d St.

CHARLES S. DOLLEY, M.D.,
Professor of General Biology. 3606 Chestnut St.

BARTON COOKE HIRST, M.D.,
Associate Professor of Obstetrics. 1624 Pine St.

HOWARD A. KELLEY, M.D.,
Associate Professor of Obstetrics. 2134 Hancock St.

Digitized by Google

WILLIAM A. LAMBERTON, A.M.,
Professor of the Greek Language and Literature. 4504 Pine St.

SIMON N. PATTEN, PH.D. (Halle),
Professor of Political Economy. 3722 Locust St.

FELIX E. SCHELLING, A.M.,
Assistant Professor of English Literature. 510 N. 4th St.

EDGAR F. SMITH, PH.D. (Göttingen),
Professor of Analytical Chemistry. 3328 Chestnut St.

ROLAND G. CURTIN, M.D.,
Lecturer on Physical Diagnosis, and Assistant Physician in University Hospital. 22 S. 18th St.

CHARLES K. MILLS, M.D.,
Lecturer on Mental Diseases. 1911 Chestnut St.

SAMUEL D. RISLEY, M.D.,
Instructor in Ophthalmology, and Ophthalmic Surgeon in University Hospital. 1722 Walnut St.

DE FOREST WILLARD, M.D.,
Lecturer on Orthopædic Surgery. 1818 Chestnut St.

ADOLPH W. MILLER, M.D.,
Lecturer on Materia Medica and Pharmacy, and Instructor in Practical Pharmacy. 860 N. 5th St.

JOHN MARSHALL, M.D., NAT.SC.D. (Tübingen),
Demonstrator of Practical Chemistry. 1409 Spruce St.

GEORGE A. PIERSOL, M.D.,
Demonstrator of Normal Histology. 48th St. and Chester Ave.

HENRY F. FORMAD, M.D.,
Demonstrator of Morbid Anatomy and Pathological Histology, Lecturer on Experimental Pathology, and Librarian of the Stillé Medical Library. 3535 Locust St.

WALTER M. L. ZIEGLER, M.D.,
Instructor in Otology, and Aural Surgeon in University Hospital. 1418 N. 17th St.

CARL SEILER, M.D.,
Instructor in Laryngology. 1346 Spruce St.

ALBERT L. A. TOBOLDT, M.D.,
Assistant Demonstrator of Practical Pharmacy. 207 Vine St.

HARRY R. WHARTON, M.D.,
Instructor in Clinical Surgery, Assistant Surgeon in University Hospital, and Lecturer on the Surgical Diseases of Children. 1405 Locust St.

RICHARD H. HARTE, M.D.,
Demonstrator of Osteology, and Assistant Surgeon in University Hospital. 1535 Spruce St.

Digitized by Google

ROBERT HUEY, D.D.S.,
Lecturer on Operative Dentistry. 330 S. 15th St.

WILLIAM DIEHL, D.D.S.,
Demonstrator of Operative Dentistry. 1513 Walnut St.

JOHN B. DEAVER, M.D.,
Demonstrator of Anatomy, and Lecturer on Topographical Anatomy. 1610 Vine St.

FRANCIS X. DERCUM, M.D.,
Instructor in Nervous Diseases. 636 N. 8th St.

THOMAS R. NEILSON, M.D.,
Assistant Demonstrator of Anatomy, and Instructor in Genito-Urinary Diseases. 223 S. 17th St.

EDMUND W. HOLMES, M.D.,
Assistant Demonstrator of Anatomy. 1523 Green St.

JUDSON DALAND, M.D.,
Instructor in Clinical Medicine. 319 S. 18th St.

WILLIAM A. EDWARDS, M.D.,
Instructor in Clinical Medicine. 300 S. 13th St.

EDWIN S. CRAWLEY, B.S.,
Instructor in Mathematics. Springfield Ave., Chestnut Hill.

J. JUDSON EDWARDS, D.D.S.,
Demonstrator of Mechanical Dentistry. 3707 Powelton Ave.

J. HENDRIE LLOYD, M.D.,
Instructor in Electro-Therapeutics. 200 S. 40th St.

A. SYDNEY ROBERTS, M.D.,
Instructor in Orthopædic Surgery. 131 S. 15th St.

J. P. CROZER GRIFFITH, M.D.,
Assistant to the Professor of the Theory and Practice of Medicine. 110 S. 18th St.

HENRY W. STELWAGON, M.D.,
Instructor in Dermatology. 1411 Spruce St.

EDWARD P. CHEYNEY, A.M.,
Instructor in History and Latin. 4301 Haverford St.

ARTHUR W. GOODSPEED, A.B.,
Instructor in Physics. 3811 Spruce St.

ALEXANDER GLASS, V.S.,
Demonstrator of Veterinary Therapeutics and Pharmacy. 2006 Bainbridge St.

WILLIAM L. TAYLOR, M.D.,
Instructor in Clinical Gynæcology. 1440 N. 12th St.

GWILLYM G. DAVIS, M.D.,
Assistant Demonstrator of Surgery. 1817 Mt. Vernoon St.

GEORGE G. MILLIKEN, D.D.S.,
Assistant Demonstrator of Operative Dentistry. 3614 Walnut St.

Digitized by Google

HUGO A. RENNERT, B.S.,
Instructor in French and German. 539 N. 13th St.

EDWARD MARTIN, M.D.,
Instructor in Operative Surgery, Assistant Demonstrator of Surgery, and Lecturer on Emergency Surgery. 415 S. 15th St.

HOBART A. HARE, M.D.,
Instructor in Physical Diagnosis, Demonstrator of Therapeutics, and Instructor in Physiology. 117 S. 22d St.

W. FRANK HAEHNLEN, M.D.,
Lecturer on Clinical and Operative Obstetrics. 1421 N. Broad St.

JOHN K. MITCHELL, M.D.,
Instructor in Clinical Medicine. 1524 Walnut St.

JAMES E. LODER, D.D.S.,
Assistant Demonstrator of Operative Dentistry. 3932 Locust St.

BENJAMIN FRANKLIN, B.S., C.E.,
Instructor in Civil Engineering. 1710 N. 18th St.

CHARLES HERMAN HAUPT, B.S., C.E.,
Instructor in Civil Engineering. 315 N. 35th St.

SAMUEL BROWN WYLIE, A.M.,
Instructor in Mathematics. 1824 Wylie St.

GEORGE H. CHAMBERS, M.D.,
Assistant Demonstrator of Normal Histology. 739 N. 17th St.

HENRY B. McFADDEN, D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 3505 Hamilton St.

JAMES McKEEN CATTELL, PH.D.,
Lecturer on Psycho-physics. 1334 Chestnut St.

EDWIN ALANSON KELLEY,
Instructor in Zoölogy. University.

JAMES K. YOUNG, M.D.,
Assistant Demonstrator of Surgery. 222 S. 16th St.

DAVID D. RICHARDSON, M.D.,
Assistant Demonstrator of Anatomy. 3256 Chestnut St.

AMBLER TEES, JR., D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 548 N. 17th St.

JOSEPH W. WHITE, D.D.S.,
Assistant Demonstrator of Operative Dentistry. 3329 Powelton Ave.

HENRY W. CATTELL, M.D.,
Assistant Demonstrator of Chemistry. 3709 Spruce St.

A. H. P. LEUF, M.D.,
Director of Physical Education. 129 S. 36th St.

Digitized by Google

MILTON J. GREENMAN,
Assistant Instructor in Biology. 3731 Locust St.

R. HAMILL D. SWING, D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 674 N. 39th St.

MILTON POWEL, D.D.S.,
Assistant Demonstrator of Operative Dentistry. 1513 Walnut St.

FREDERICK W. AMEND, JR., D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 3212 Market St.

JOHN H. MUSSER, M.D.,
Instructor in Clinical Medicine. N. E. cor. 40th and Locust Sts.

SIMON J. J. HARGER, V.M.D.,
Assistant Demonstrator of Veterinary Anatomy. 2117 Columbia Av.

CHARLES WILLIAMS, V.M.D.,
Demonstrator of Surgical Pathology (Veterinary). 1213 N. 13th St.

GARRETT EDWARDS,
Farrier and Demonstrator of Forging and Horse-shoeing. 213 De Kalb Sq.

JOHN B. ROBERTS, M.D.,
Assistant Demonstrator of Anatomy. 1627 Walnut St.

MARSHALL F. PUGH, B.S., E.M.,
Assistant in Metallurgy and Mining. Doylestown, Pa.

ROLAND P. FALKNER, PH.D. (Halle),
Instructor in Accounting and Statistics. 36 Tulpehocken St., Gtn.

JAMES A. MONTGOMERY, A.B.,
Instructor in Hebrew. 5000 Woodland Ave.

ALLEN J. SMITH, M.D.,
Assistant Demonstrator of Morbid Anatomy and Pathological Histology. 332 S. 17th St.

ROBERT FORMAD, V.M.D.,
Assistant Demonstrator of Normal Histology. 3535 Locust St.

T. PASSMORE BERENS, M.D.,
Instructor in Physical Diagnosis. 2006 Arch St.

ARTHUR W. STEVENS, M.D.,
Instructor in Physical Diagnosis. 4656 Green St., Gtn.

ANDREW J. PLUMER, M.D.,
Assistant Demonstrator of Morbid Anatomy and Pathological Histology. 3535 Locust St.

EDWARD TATUM, M.D.,
Demonstrator of Physiology. Seminole Ave., Chestnut Hill.

GUY HINSDALE, M.D.,
Instructor in Physical Diagnosis. 4004 Chestnut St.

EDGAR P. EARLE, B.S., M.E.,
Instructor in Dynamical Engineering. Chestnut Hill.

Digitized by Google

CHARLES A. PETERSON, A.B., B.S.,
Instructor in Electrical Engineering. 123 N. 15th St.

HARRY F. KELLER, PH.NAT.D. (Strassburg),
Instructor in Organic Chemistry. 257 N. 6th St.

LEE K. FRANKEL, B.S., P.C.,
Instructor in Analytical Chemistry. 1315 Marshall St.

HORACE McCANNA, D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 2434 Brown St.

J. EDWARD DUNWOODY, D.D.S.,
Assistant Demonstrator of Operative Dentistry. 339 N. 40th St.

MILTON N. KEIM, Jr., D.D.S.,
Assistant Demonstrator of Mechanical Dentistry. 2047 Arch St.

BENJAMIN F. STAHL, M.D.,
Instructor in Physical Diagnosis. 1502 Arch St.

SENECA EGBERT, M.D.,
Demonstrator of Hygiene. 4808 Springfield Ave.

CHARLES MEREDITH BURK,
Assistant Instructor in Zoölogy. 2110 Vine St.

LOUIS OLRY LUSSON, V.M.D.,
Demonstrator of Internal Pathology and Zoötechnics. 1607 Vine St.

GULDIN R. HARTMAN, V.M.D.,
Assistant Demonstrator of Veterinary Anatomy. 2130 N. 4th St.

EDWARD C. KIRK, D.D.S.,
Lecturer on Operative Dentistry.

OTTO REUNING,
Clerk to the College Faculty.

WM. H. SALVADOR,
Clerk to the Faculty of Medicine.

JOHN A. REIMOLD,
Clerk to the Faculty of Dentistry.

JOHN H. SALVADOR,
Clerk to the Faculty of Veterinary Medicine.

BARCELONA BASS,
Clerk to the Faculty of Biology.

Digitized by Google

COLLEGE DEPARTMENT.

FACULTY.

WILLIAM PEPPER, M.D., LL.D, PROVOST OF THE UNIVERSITY, and *ex-officio* President of the Faculty.

E. OTIS KENDALL, LL.D., VICE-PROVOST, *ex-officio* DEAN OF THE FACULTY, and THOMAS A. SCOTT Professor of Mathematics.

JOSEPH LEIDY, M.D., LL.D., Professor of Zoölogy and Comparative Anatomy.

FRANCIS A. JACKSON, A.M., Professor of the Latin Language and Literature.

OSWALD SEIDENSTICKER, PH.D., Litt.D., Professor of the German Language and Literature.

JOHN G. R. McELROY, A.M., Professor of Rhetoric and the English Language.

J. I. CLARK HARE, LL.D., Professor of Constitutional Law.

REV. ROBERT ELLIS THOMPSON, D.D., JOHN WELSH CENTENNIAL Professor of History and English Literature.

GEORGE F. BARKER, PH.B., M.D., Professor of Physics.

LEWIS M. HAUPT, A.M., C.E., Professor of Civil Engineering.

THOMAS W. RICHARDS, A.M., Professor of Drawing and Architecture.

GEORGE A. KŒNIG, PH.D., Professor of Mineralogy and Metallurgy.

SAMUEL P. SADTLER, PH.D., Professor of Organic and Industrial Chemistry.

HUGH A. CLARKE, MUS. DOC., Professor of the Science of Music.

JOSEPH T. ROTHROCK, M.D., B.S., Professor of Botany.

WILLIAM D. MARKS, PH.B., C.E., WHITNEY Professor of Dynamical Engineering.*

OTIS H. KENDALL, PH.D., Assistant Professor of Mathematics.

MORTON W. EASTON, PH.D., Professor of Comparative Philology and Instructor in French.

EDMUND J. JAMES, PH.D., Professor of Finance and Administration.*

JOHN BACH McMASTER, A.M., Professor of American History.

* Absent on Leave.

Digitized by Google

HORACE JAYNE, M.D., Professor of Vertebrate Morphology.
REV. GEORGE S. FULLERTON, A.M., B.D., ADAM SEYBERT Professor of Intellectual and Moral Philosophy.
REV. JOHN P. PETERS, PH.D., Professor of Hebrew.*
JOHN A. RYDER, PH.D., Professor of Comparative Embryology.
WILLIAM POWELL WILSON, Sc.D., Professor of the Anatomy and Physiology of Plants.
HENRY W. SPANGLER, Assistant Engineer U.S.N., Assistant Professor of Dynamical Engineering. †
CHARLES S. DOLLEY, M.D., Professor of General Biology.
A. H. P. LEUF, M.D., Director of Physical Education.
WILLIAM A. LAMBERTON, A.M., Professor of the Greek Language and Literature.
SIMON N. PATTEN, PH.D., Professor of Political Economy.
FELIX E. SCHELLING, A.M., Assistant Professor of English Literature.
EDGAR F. SMITH, PH.D., Professor of Analytical Chemistry.

INSTRUCTORS.

EDWIN S. CRAWLEY, B.S., Instructor in Mathematics.
EDWARD P. CHEYNEY, A.M., Instructor in History and Latin.
ARTHUR W. GOODSPEED, A.B., Instructor in Physics.
HUGO A. RENNERT, B.S., Instructor in French and German.
HOBART A. HARE, M.D., Instructor in Physiology.
BENJAMIN FRANKLIN, B.S., C.E., Instructor in Civil Engineering.
CHARLES HERMAN HAUPT, B.S., C.E., Instructor in Civil Engineering.
SAMUEL BROWN WYLIE, A.M., Instructor in Mathematics.
EDWIN A. KELLEY, Instructor in Zoölogy.
MILTON J. GREENMAN, Assistant Instructor in Biology.
MARSHALL F. PUGH, B.S., E.M., Assistant in Metallurgy and Mining.
ROLAND P. FALKNER, PH.D., Instructor in Accounting and Statistics.
JAMES A. MONTGOMERY, A.B., Instructor in Hebrew.
EDGAR P. EARLE, B.S., M.E., Instructor in Dynamical Engineering.
CHARLES A. PETERSON, A.B., B.S., Instructor in Electrical Engineering.
HARRY F. KELLER, PH.NAT.D., Instructor in Organic Chemistry.
LEE K. FRANKEL, B.S., P.C., Instructor in Analytical Chemistry.

FRANCIS A. JACKSON, Secretary.

* Absent on Leave.
† In charge of the course during Prof. Marks's absence.

Digitized by Google

GRADUATE STUDENTS.

HECTOR TYNDALE FELLOW IN PHYSICS.

George Flowers Stradling, A.B., Hatboro.

POST-SENIORS.

The Courses are indicated as follows:—Arts, A.; Science, Sc.; Philosophy, Ph.; Finance and Economy, Wh.; Pure and Applied Chemistry, 1; Metallurgy and Mining, 2; Civil Engineering, 3; Dynamical Engineering, 4; Architecture, 5. Special and partial students, attending with the several classes, are printed in italics; partial students, with an asterisk (*) added.

	Course.	Residence.	City Address.
Hubert Alexander Bonzano, C.E.,	Sc. 1,	Phœnixville.	
Eugene Delano Cleaver, B.S.,	3,	Berwyn.	
Alexander Brown Coxe, A.B.,	2,	New York,	Cor. 19th & Walnut Sts.
Emlen Trenchard Hall,	1,	Philadelphia,	1623 Spruce St.
George Brodhead Harris, B.S.,	3,	do.	School Lane, Gtn.
Manton Eckfeldt Hibbs, B.S.,	3,	do.	527 N. 18th St.
Oliver Hough,	1,	do.	325 S. 16th St.
William George Houston, B.S.,	3,	do.	814 N. 21st St.
George Washington Hyde, Jr.,	3,	do.	Lemon Hill.
Frederick Merwin Ives, B.S.,	3,	Rome, Italy,	3709 Woodland Ave.
Edwin Robert Keller, B.S.,	4,	Philadelphia,	257 N. 6th St.
Edgar Kidwell, A.B.,	4,	Washington, D.C.,	3926 Pine St.
Thomas Canning McBride,	4,	Philadelphia,	2212 Brandywine St.
Robert Samuel MacLeister,	3,	do.	2218 Pine St.
Charles Everett Ross, B.S.,	4,	Chester, (347 Kerlin St.)	
John Richard Savage, Jr.,	3,	Philadelphia,	212 W. Orthodox St.
William James Smith, B.S.,	3,	do.	868 Preston St.
Walter Raiguel Stroud,	1,	do.	2035 Mt. Vernon St.

Post-Seniors, 18.

UNDERGRADUATES.

SENIORS.

William Clarence Arrison,	A.,	Philadelphia,	33 E. Orthodox St.
Franklin Bache,	Sc. 2,	do.	Cor. 40th & Pine Sts.
Frederic Robeson Baker,	A.,	do.	1414 Arch St.
Joseph Price Ball,	Sc. 1,	do.	4533 Frankford Ave.
William Alexander Bell,	A.,	New York,	717 S. 10th St.
Timothy Raymond Beyer,	Sc. 3,	Philadelphia,	4835 Green St., Gtn.
Charles Sterling Bonsall,	Wh.,	do.	221 N. 13th St.
Herbert Hart Boyd,	Wh.,	do.	2223 Spruce St.
George Brooke, Jr.,	Wh.,	Birdsboro.	
Charles Newton Clement Brown,	A.,	Philadelphia,	2119 Mt. Vernon St.
John Eugene Carbutt,	Sc. 1,	do.	2105 Venango St.
Oscar Pearl Chamberlain,	Sc. 3,	do.	3923 Aspen St.
Jacob Orie Clarke,	Sc. 3,	do.	2536 Park Terrace.
Gurney Fairfax Coleman,	Sc. 1,	Limerick,	3260 Chestnut St.

Digitized by Google

Francis Macomb Cresson,	Sc. 4,	Oaks.	
Benjamin Markley Davis,	Sc. 1,	Philadelphia,	1723 Vine St.
Leon Symonety Dexter,	A.,	do.	437 N. 32d St.
Conway Dillingham,	A.,	West Chester.	
Sherborne William Dougherty,	A.,	Philadelphia,	1435 Girard Ave.
Rev. William Du Hamel, A.B.,	A.,	Church Hill, Md.,	3301 Woodland Ave.
Christian Frederic Fisher,	Sc. 3,	Philadelphia,	515 Green St.
Thomas Willis Fleming,	Sc. 3,	do.	2105 Tioga St.
William Innes Forbes,	A.,	do.	1704 Walnut St.
Charles Harrison Frazier,	A.,	do.	250 S. 18th St.
Dallett Fuguet,	A.,	Bryn Mawr.	
Milton Jay Greenman,	Ph.,	North East,	3731 Locust St.
Rodman Ellison Griscom,	Wh.,	Haverford College.	
William Guggenheim,	Sc. 2,	Philadelphia,	1420 N. 16th St.
Tamio Hayashi,	Wh.,	Tokio, Japan.	3603 Baring St.
Joseph Lazarus Hecht,	Sc. 1,	Philadelphia,	1738 Warnock St.
George Henderson,	Wh.,	do.	1221 Arch St.
George Hammeken Hill,	Sc. 3,	do.	231 S. 42d St.
Robert Carmer Hill,	Wh.,	do.	129 N. 18th St.
Thomas Wilkins Hulme,	Sc. 3,	Mount Holly,	N. J.
Matthew James Hyndman,	A.,	Philadelphia,	1529 N. 2d St.
Edwin Isaac Hyneman,	A.,	do.	1015 Green St.
Joseph Sommers Jaffa,	Wh.,	Trinidad, Col.,	514 N. 5th St.
Charles Peter Beauchamp Jefferys, Jr.,	Wh.,	Philadelphia,	3928 Walnut St.
Henry Martin Justi,	Sc. 1,	do.	3401 Baring St.
Clarence Sears Kates,	Sc. 1,	do.	1937 Spring Garden St.
Charles Barton Keen,	Sc. 5,	do.	3913 Chestnut St.
Rudolph Howard Klauder,	Sc. 4,	do.	2208 Venango St.
Edward Christman Knight,	Sc. 2,	do.	Clapier St., Gtn.
Benjamin Franklin Lacy,	A.,	do.	650 N. 13th St.
Jeremiah Berrell Larzelere Jr.,	Wh.,	Willow Grove.	
Samuel McCune Lindsay,	Wh.,	Philadelphia,	3912 Chestnut St.
Joseph Reynolds McCance,	A.,	Pittsburgh,	3336 Chestnut St.
George Hummel McNeely,	Sc. 1,	Philadelphia,	S.W.Co.4th & Arch Sts.
Howard Mellor,	Ph.,	do.	460 Marshall St.
August Appleton Miller,	Sc. 1,	do.	623 N. 13th St.
Geo. Whitfield Taylor Miller,	Sc. 3,	do.	200 E. Chelten Av., Gtn.
James Clayton Mitchell,	A.,	do.	1525 N. 16th St.
Edward Warloch Mumford,	Wh.,	do.	1401 N. 17th St.
Ellis Paxson Oberholtzer,	Wh.,	Norristown.	
Edward Asa Partridge,	Sc. 1,	Philadelphia,	1738 Sydenham St.
Charles Peabody,	A.,	do.	W. Walnut Lane, Gtn.
Elliston Joseph Perot,	A.,	do.	W. Walnut Lane, Gtn.
Walter Phillips,	Sc. 4,	do.	450 Marshall St.
David Bowen Salter,	Sc. 3,	do.	2016 Mt. Vernon St.
Lloyd Mifflin Scott,	A.,	do.	2000 Spruce St.
Walter Scott,	Wh.,	do.	3808 Chestnut St.
Alfred Newlin Seal,	Sc. 1,	do.	1418 Bouvier St.
Daniel Bussier Shumway,	A.,	do.	1740 Green St.
Albert Haseltine Smith,	Wh.,	Abington.	
Isaac Starr, Jr.,	Sc. 4,	Philadelphia,	2203 Trinity Place.

Digitized by Google

John Lammey Stewart,	Wh.,	Philadelphia,	1826 Dickinson St.
Robert Stulb,	A.,	do.	506 N. 4th St.
Joseph Fithian Tatem,	Wh.,	Haddonfield, N. J.	
Archibald Grahm Thomson,	Ph.,	Philadelphia,	1426 Walnut St.
*Washington Van Dusen,**	A.,	do.	2124 N. 20th St.
Clarence Burns White,	Wh.,	do.	750 N. 40th St.
William Macpherson Wiltbank,	A.,	do.	1813 De Lancey Place.
Clinton Rogers Woodruff,	Wh.,	do.	1847 N. 21st St.
Nathan Young Worrall,	Wh.,	do.	2005 Mt. Vernon St.
Archibald Wright,	Sc. 1,	do.	1804 Race St.

Seniors, 75.

JUNIORS.

David Guy Anderson,	Sc. 3,	Philadelphia,	3213 Sansom St.
John Antrobus,	A.,	do.	2512 Hagert St.
Lewis Audenried,	Wh.,	do.	1823 Walnut St.
John Joseph Borie,	Sc. 5,	do.	Chestnut Hill.
Charles Shimer Boyer,	Sc. 1,	Camden, N. J.,	(528 Linden St.)
Robert Hart Bradbury,	Sc. 2,	Philadelphia,	45 Otter St.
John Hill Brinton,	A.,	do.	1423 Spruce St.
Clarence Chew Burger,	Sc. 1,	do.	3153 Mantua Ave.
William Herbert Burk,	A.,	Clarksboro, N. J.,	2110 Vine St.
Robert Belle Burke,	A.,	Philadelphia,	3604 Locust St.
Evaristo Andrew Cálves,	Sc. 3,	do.	1814 Park Ave.
John Allen Capp,	Sc. 4,	do.	1323 N. 12th St.
William Wilson Chambers,	Sc. 4,	do.	1906 Green St.
Joseph Warren Coulston, Jr.,	A.,	do.	1326 Walnut St.
Henry Howard Cressman,	Sc. 1,	Sellersville.	
Bernard Alphonsus Cullen, A.B.,	Sc. 3,	Spruce Creek,	123 S. 36th St.
James Francis Cullen, A.B.,	Sc. 3,	do.	do.
George Herbert Dennison,	A.,	Philadelphia,	Roxboro'.
Richard Griffith Develin,	Sc. 3,	Camden, N. J.	
James Whalley Diggles,	A.,	Philadelphia,	2442 Oxford St.
*Henry Yale Dolan,**	Sc.,	do.	1809 Walnut St.
Chester Nye Farr, Jr.,	Sc. 3,	do.	722 N. 44th St.
Maurice Mayer Feustmann,	Sc. 1,	do.	1512 Girard Ave.
Edwin Stanton Field,	Sc. 4,	do.	36th & Powelton Ave.
Hermann Fleck,	Sc. 1,	do.	108 Rittenh'se St., Gtn.
Frank Richards Ford,	Sc. 4,	do.	1823 Vine St.
Robert Isaac Gamon,	A.,	do.	1629 Christian St.
George Washington Gist, Jr.,	Sc. 3,	Westminster, Md.,	3264 Chancellor Pl.
William Goodwin,	A.,	Philadelphia,	Chestnut Hill.
Benjamin Lease Crozer Griffith,	A.,	Upland.	
William Oglesby Griffith,	Sc. 4,	Philadelphia,	2213 Locust St.
Henry Riley Gummey, Jr.,	A.,	do.	E. Walnut Lane, Gtn.
Henry Warren Kilburn Hale,	Sc. 4,	do.	636 Race St.
Frederic Valerius Hetzel,	Sc. 4,	do.	2325 Hare St.
Samuel David Hopkins,	Sc. 1,	do.	3513 Hamilton St.
Richard Lewis Humphrey,	Sc. 3,	do.	1813 Ridgway Terrace.
James Clark Irwin,	Sc. 3,	Cheyney.	
Jiro Itami,	Wh.,	Tokio, Japan,	423 S. 40th St.
Henry Leopold Jefferys,	A.,	Philadelphia,	3928 Walnut St.

Digitized by Google

John George Klemm, Jr.,	Sc. 4,	Philadelphia,	3934 Chestnut St.
Manzo Kushida,	Wh.,	Tokio, Japan,	603 S. 42d St.
Benjamin Brentnall Lathbury,	Sc. 3,	Philadelphia,	2112 Uber St.
Harrison Wainwright Latta,	Sc. 3,	do.	1525 Mt. Vernon St.
Francis Bazley Lee,	Wh.,	Trenton, N. J.	
Henry Ashton Little,	A.,	Wallingford.	
William Simpson Lorimer,	Sc. 1,	Philadelphia,	201 E. Chelten Av., Gtn.
William Henry Loyd, Jr.,	A.,	do.	4309 Spruce St.
Arthur William McCauley,	Sc. 1,	do.	1310 N. 6th St.
Arthur McGeorge,	Wh.,	Merion.	
Charles Jackson McIlvain, Jr.,	Sc. 5,	Philadelphia,	435 N. 33d St.
Nelson Baum Mayer,	Sc. 1,	do.	945 N. 8th St.
James Hartley Merrick,	A.,	do.	Roxboro'.
Caspar Wistar Miller,	Ph.,	Media.	
William Sieger Miller,	Sc. 1,	Philadelphia,	2032 Spring Garden St.
Joseph MacGregor Mitcheson,	A.,	do.	1608 Locust St.
Leighton Nealle Davis Mixsell,	Sc. 2,	do.	725 S. 15th St.
Charles Phillips Nassau,	Sc. 1,	do.	2154 N. 12th St.
Frederick Brooke Neilson,	A.,	do.	325 S. 12th St.
Frederick Shaw Nelson,	Sc. 5,	do.	3234 Chestnut St.
Delancey Verplanck Newlin,	A.,	do.	1018 Clinton St.
William Rufus Nicholson, Jr.,	Ph.,	do.	2106 Chestnut St.
Hugh Walker Ogden,	A.,	Portland, Me.	Ogontz.
Harry Van Buren Osbourn,	Sc. 3,	Philadelphia,	1433 Euclid Ave.
William Hahn Patterson,	A.,	do.	1633 Locust St.
Josiah Harmar Penniman,	A.,	do.	2316 St. Alban's Place.
Charles Getz Peocock,	Wh.,	Reading,	3340 Walnut St.
Robert McClellan Ramsey,	A.,	Philadelphia,	1717 Carpenter St.
George David Rosengarten, Jr.,	Sc. 1,	do.	325 S. 17th St.
Leo Stanton Rowe,	Wh.,	do.	958 Franklin St.
John Francis Rowland, Jr.,	Sc. 4,	do.	Cor. Centre & Ritchie Sts., Manayunk.
Holden Bovee Schermerhorn,	Wh.,	do.	3217 Hamilton St.
Adolph William Schramm,	Sc. 4,	Camden, N. J.,	(521 N. 2d St.)
Harrison Souder,	Sc. 3,	Philadelphia,	3927 Baltimore Ave.
John Franklin Stevens,	Sc. 4,	do.	3913 Walnut St.
Morton Stevens,	Sc. 2,	do.	414 Richmond St.
John Gilbert Stoddart,	Wh.,	do.	107 S. 21st St.
Richard Saunders Stoyle,	Wh.,	do.	2217 Vine St.
Howard Hungerford Sypher,	Sc. 4,	do.	4025 Walnut St.
William Henry Trotter, Jr.,	Wh.,	do.	1303 Spruce St.
Robert Reineck Truitt,	A.,	do.	3505 Baring St.
Benjamin Schell Walters,	Sc. 3,	Lansdowne.	
Horace Andrews Walton,	A.,	Philadelphia,	Roxboro'.
Joseph Trank Wheeler,	Sc. 1,	do.	2026 Chestnut St.
Thomas Brown Whitney,	Sc. 2,	do.	1815 Vine St.
Peter Silas Zimmerman,	A.,	do.	1814 Diamond St.

Juniors, 85.

Digitized by Google

SOPHOMORES.

*John Pilling Armstrong,**	Sc.,	Stanton, Del.,	3333 Walnut St.
William Henry Ashhurst,	A.,	Philadelphia,	2210 Walnut St.
Scott Beggs,	Sc.,	Wilmington, Del.	
James Lord Bernard,	Sc.,	Philadelphia,	117 Green Lane, Myk.
Henry Ingersol Brown,	A.,	do.	Wayne Ave., Gtn.
James Manderson Castle,	Sc.,	do.	4241 Walnut St.
Daniel Bell Cummins Catherwood,	Sc.,	do.	2112 Walnut St.
Edgar Moore Church,	Sc.,	do.	Knox & Penn Sts., Gtn.
Samuel Rakestraw Colladay,	A.,	do.	4051 Sansom St.
*Trevanion Border Dallas,**	Sc.,	do.	265 S. 4th St.
Edwin Adams Damon,	Sc.,	do.	1606 Walnut St.
George Peterson Deacon,	Sc.,	do.	E. Walnut Lane, Gtn.
Henry Delaplaine,	Sc.,	do.	3706 Baring St.
Erskine Hazard Dickson,	A.,	do.	901 Clinton St.
James MacIntosh Longstreth Eckard,	A.,	Abington.	
John Joseph Elcock,	Sc.,	Waverly Heights.	
Abram Myer Feldman,	Sc.,	Zitomir, Russia,	627 South St.
Richard Field,	Sc.,	Philadelphia,	5600 Lansdowne Ave.
Sparta Fritz, Jr.,	Sc.,	do.	5006 Green St., Gtn.
Edward Prime Goodell,	Sc.,	do.	1418 Spruce St.
Lloyd Carpenter Griscom,	Sc.,	Haverford College.	
*Charles Gibson Grosholz,**	A.,	Philadelphia,	1806 Spruce St.
Thomas Powers Harris,	A.,	do.	1607 Walnut St.
Francis Head,	Sc.,	do.	132 Price St., Gtn.
*Albert Hill,**	A.,	do.	1822 Wallace St.
Herbert Rutherford Hogg,	A.,	do.	929 N. Broad St.
*Thomas Pawling Holloway,**	A.,	do.	1223 Poplar St.
John Jay Lafayette Houston,	Sc.,	do.	3333 Walnut St.
*Philip Eugene Howard,**	A.,	do.	3710 Walnut St.
Thomas Wallis Huidekoper,	Sc.,	do.	2020 Spruce St.
Hisaya Iwasaki,	Sc.,	Tokio, Japan,	4048 Chestnut St.
Topliff Johnson,	Sc.,	Philadelphia,	Locust Ave., Gtn.
Chester Hughes Kirk,	Sc.,	do.	1518 N. 18th St.
William Gray Knowles,	Sc.,	do.	1628 Spruce St.
Burnet Landreth, Jr.,	Sc.,	Bristol.	
Charles Ridgely Lee,	Sc.,	Philadelphia,	4216 Walnut St.
*Frederick Lennig,**	A.,	Andalusia.	
Frederick Leser, Jr.,	Sc.,	Philadelphia,	1700 Tioga St.
George Francis Levan,	A.,	do.	733 N. 41st St.
Alfred Meyer Liveright,	A.,	Osceola Mills,	1737 N. 8th St.
William MacAdoo, Jr.,	A.,	Philadelphia,	1926 Bainbridge St.
Thomas McKean, Jr.,	A.,	do.	1925 Walnut St.
George Ingels MacLeod, Jr.,	Sc.,	do.	3905 Locust St.
*Clayton Fotteral McMichael,**	Sc.,	do.	2041 Walnut St.
John Maurer,	Sc.,	do.	102 S. 2d St.
*Frederick Kollner Mears,**	Sc.,	Clifton Heights.	
Frederick Rogers Meigs,	Sc.,	Philadelphia,	1713 Locust St.
Alexander Wilson Norris, Jr.,	A.,	do.	2230 Spruce St.

Digitized by Google

*John Chatlin Ogden,**	Sc.,	Philadelphia,	72d & Greenway Ave.
Harvey E. Platt,	Sc.,	do.	2026 Wallace St.
James De Wolf Perry, Jr.,	A.,	do.	Manheim St., Gtn.
Wilson Worrell Pile,	Sc.,	do.	721 Spruce St.
Wilmer Hershey Righter,	A.,	do.	4012 Spruce St.
William Beni Rosskam,	Sc.,	do.	1423 N. 15th St.
Edward Koons Rowland,	Sc.,	do.	2029 Spruce St.
Edward Adams Shumway,	Sc.,	do.	1740 Green St.
George Hughes Smith,	Sc.,	Mahanoy City,	1918 Judson Place.
*Sidney Wheaton Smith,**	A.,	Philadelphia,	218 N. 32d St.
James Starr,	Sc.,	do.	Clivedon & Morton Sts., Gtn.
John Hermon Terry,	Sc.,	do.	2119 N. 13th St.
*Joseph Baylis Thomas,**	A.,	do.	3446 Chestnut St.
*Robert Allen Trenwith,**	Sc.,	do.	758 S. 9th St.
Louis de Pui Vail,	A.,	do.	114 W. Chelten Av., Gtn.
*John Reed Valentine,**	A.,	do.	2027 Pine St.
Marcel Alphonse Viti,	Sc.,	do.	2129 Spruce St.
James Mortimer West, Jr.,	Sc.,	do.	1524 Swain St.
Cornelius Weygandt,	A.,	do.	124 Tulpehocken St., Gtn.
John Robert White, Jr.,	A.,	do.	20th St. & Ontario Ave.
*Francis Churchill Williams,**	A.,	do.	4725 Green St., Gtn.
Biddle Wood,	Sc.,	Conshohocken,	1016 Spruce St.
Horatio Curtis Wood,	Sc.,	Philadelphia,	147 School St., Gtn.
Francis Yarnall,	A.,	do.	3914 Locust St.
James Charles Ziegler,	Sc.,	do.	636 N. 35th St.

Sophomores, 73.

FRESHMEN.

Walter Barclay,	A.,	Philadelphia,	1816 Pine St.
*Eugene Beauharnais Beaumont, Jr.,**	Sc.,	do.	4409 Sansom St.
Charles Louis Borie, Jr.,	Sc.,	do.	1035 Spruce St.
Frank Bernadou Bower,	Sc.,	do.	130 S. 23d St.
John Harold Brockie,	A.,	do.	Tulpehocken St., Gtn.
Charles Nicoll Bancker Camac,	A.,	do.	Wissahickon.
Joseph Roberts Carpenter, Jr.,	A.,	do.	304 S. 10th St.
William Lund Clampffer,	Sc.,	do.	325 Walnut St.
Fletcher Cornelius Clay,	A.,	do.	210 S. 43d St.
Harry Grantham Colesberry,	Sc.,	Oak Lane.	
*Thomas Luther Coley,**	A.,	Trenton, N. J.,	704 Franklin St.
Harry Warren Cook,	A.,	Philadelphia,	2002 N. 13th St.
Edward William Coon,	Sc.,	do.	1718 Girard Ave.
Francis Thibault Cross,	Sc.,	do.	32 S. 21st St.
*Robert Morris Darrach,**	A.,	do.	5121 Green St., Gtn.
Charles James Dougherty,	Sc.,	Englewood, N,	J., 1501 Filbert St.
William Duane,	A.,	Philadelphia,	115 N. 34th St.
John Warner Grigg Dunn,	Sc.,	do.	Chestnut Hill.
*Samuel Rulon Earl,**	A.,	Wynnewood.	
Charles Bower Early,	Sc.,	Philadelphia,	1520 N. 6th St.
Homer Watton Edwards,	Sc.,	do.	1328 Walnut St.

Digitized by Google

Albert Egbert,	Sc.,	Franklin,	4808 Springfield Ave.
Joseph Williams Fell,	A.,	Philadelphia,	1534 N. Broad St.
Rev. William Alexander Ferguson,	A.,	do.	2043 Bainbridge St.
Samuel Fleisher,	Sc.,	do.	2220 Green St.
Percival Vaisey French,	Sc.,	do.	4226 Chester Ave.
*Edwin Stauffer Gault,**	A.,	do.	4204 Aspen St.
Edward Robert Green,	Sc.,	do.	240 S. 8th St.
Ryland Warriner Greene,	A.,	Merchantville,	N. J.
Frank Tracy Griswold,	Sc.,	Philadelphia,	1500 Spruce St.
*Frank Thomson Gucker,**	Sc.,	do.	3422 Hamilton St.
Arthur Hagen, Jr.,	Sc.,	do.	1725 Girard Ave.
Frank Bacon Hancock,	Sc.,	do.	3841 Powelton Ave.
Albert Lawrence Harris,	Sc.,	do.	2010 Girard Ave.
Clinton Gardner Harris,	Sc.,	do.	144 School Lane, Gtn.
Carl Friedrich Haussmann, Jr.,	A.,	Adrian, Mich.,	907 Hutchinson St.
Wilmer Worthington Hoopes,	Sc.,	West Chester.	
William Stewart Jamison,	Sc.,	Philadelphia,	3912 Walnut St.
Harry Ellwood Keller,	Sc.,	do.	495 N. 4th St.
Albert Bartram Kelley,	A.,	do.	Cor. 41st & Parrish Sts.
GeorgeWashingtonKendrick, 3d,	A.,	do.	3507 Baring St.
Augustus Otto Koenig,	Sc.,	do.	3207 Summer St.
John Henry Lafferty,	A.,	do.	1427 Euclid Ave.
Addison Farwell Lansing,	Sc.,	Burlington, N. J.	
George Edmunds Lawrence,	Sc.,	Camden, N. J.,	(1034 S. 5th St.)
Charles Trumbull Lee,	Sc.,	Philadelphia,	1532 Pine St..
Clifford Lewis, Jr.,	A.,	do.	313 S. 12th St.
Joseph Hunter Lewis,	Sc.,	do.	768 Florida St.
Jay Bucknell Lippincott,	Sc.,	do.	2012 Walnut St.
*Thomas Luke,**	Sc.,	Rockland, Del.	
William Weaver Lukens,	A.,	Conshohocken.	
Archibald McCullagh, Jr.,	A.,	Brooklyn, N. Y.,	2012 Race St.
Clayton McElroy,	Sc.,	Philadelphia,	115 S. 20th St.
Clifton Maloney,	A.,	do.	625 N. 15th St.
Howard Ware Middleton, Jr.,	Sc.,	do.	E. Walnut Lane, Gtn.
John Kaufman Mohr,	Sc.,	do.	1611 N. 15th St.
William Stuart Morris,	A.,	do.	1514 Spruce St.
*Charles Francis Morrow,**	Sc.,	Wilmington, Del.	
Frank Muhr,	Sc.,	Philadelphia,	823 N. 6th St.
Charles Thornton Murphy, Jr.,	A.,	do.	2121 Arch St.
Willis McCall Myers,	Sc.,	Gainesville, Fla.,	3318 Woodland Ave.
Richard Marshall Newlin,	Sc.,	Philadelphia,	1018 Clinton St.
William K. Orton,	Sc.,	do.	2038 Race St.
Samuel Davis Parry,	Sc.,	Breadyville.	
Franklin Peale Patterson,	Sc.,	Philadelphia,	1633 Locust St.
Matthew Patton,	A.,	do.	609 E. Girard Ave.
Faustino Apolonio Perez,	Sc.,	Parras, Coahuila,	1725 Arch St.
Alonzo Willoughby Platt,	Sc.,	Philadelphia,	2026 Wallace St.
Samuel Kingsley Probasco,	Sc.,	Burlington, N.	J.
Harry Vollmer Register,	A.,	Philadelphia,	120 N. 34th St.
*John Barclay Stevenson Rex,**	Sc.,	do.	1611 Race St.
Henry Hansell Ritter,	Sc.,	do.	Logan.

Digitized by Google

Adolph George Rosengarten,	Sc.,	Philadelphia,	325 S. 17th St.
*Walter Rowland,**	Sc.,	do.	Frankford.
Ulysses Simpson Schaul,	A.,	do.	Eastwick Place.
FrancisSteenbergenSchmucker,	A.,	do.	1348 Spruce St.
*William Reese Scott, Jr.,**	A.,	do.	2159 Dauphin St.
Louis Raymond Shellenberger,	Sc.,	do.	4783 GermantownAve.
Henry Simons Shillingford,	Sc.,	do.	1118 Wallace St.
Owen Louis Shinn,	Sc.,	do.	1714 Willington St.
William Emil Snyder,	Sc.,	Wilmington,	Del.
Harry Bismarck Sobernheimer,	A.,	Philadelphia,	4743 Washington St., Manayunk.
*James Alexander Stewart,**	Sc.,	do.	2532 Brown St.
Harry Chapman Thayer,	Sc.,	Merion.	
Adam Clarke Thompson,	Sc.,	Westminster, Md.,	2414 Jefferson St.
Arthur Conover Thomson,	A.,	Fredericksburg, Va.,	Ogontz.
William Budd Trites, Jr.,	A.,	Philadelphia,	4500 Baker St., Myk.
Ernest Macdowel Vail,	A.,	do.	114 W.CheltenAv.,Gn.
Abram Sharpless Valentine,	Sc.,	do.	235 School Lane, Gtn.
Joseph Wood Wagner,	Sc.,	do.	School Lane, Gtn.
*Karl Albert Walraven,**	Sc.,	do.	341 S. 18th St.
Olin Leslie West,	Sc.,	Wilmington,	Del.
Samuel Bowman Wheeler,	Sc.,	Bryn Mawr.	
Clarence Russell Williams,	A.,	Philadelphia,	119 Price St., Gtn.

Freshmen, 94.

SUMMARY.

	Arts.	Science.	Philosophy.	Finance.	Totals.
Fellow	1	—	—	—	1
Post-Seniors, ...	—	18	—	—	18
Seniors, ...	23	29	3	20	75
Juniors, ...	25	47	2	11	85
Sophomores, ...	27	46	—	—	73
Freshmen, ...	34	60	—	—	94
Totals, ...	110	200	5	31	346

Digitized by Google

COURSES OF STUDY.

The College Faculty conducts the following Courses of Study:

I. The Course in Arts.
II. The Course in Science in the Towne Scientific School.
III. The Course in Philosophy for Undergraduates.
IV. The Course in Finance and Economy in the Wharton School.
V. The Course in Music.

In Freshman and Sophomore years, these courses (except that in Music) differ mainly in the languages elected by the student, whether Latin and Greek, Latin with French or German, or French and German without Latin. All four courses include Rhetoric, History, English Literature, Mathematics, Chemistry, and Mechanics. At the close of Sophomore year, the courses diverge into essentially different groups of studies, any one of which may be taken by the student; viz., (1) Further Studies in Arts (in large part *elective*), (2) The Technical Courses in Science, (3) A Group of Studies mainly Biological, (4) Special Studies in Finance and Economy. Students who wish to take a Technical Course in Science, however, must show a preparation equivalent to that given by the first two years of the Course in Science. (Detailed statements of these groups of studies may be found on pp. 41–60, below.)

ADMISSION TO COLLEGE.

Candidates for the Freshman class are admitted to college either on certificate or by examination.

Blank certificates are issued every year to principals of recognized preparatory schools and to such private teachers as the Dean may name for the privilege. The Faculty reserves the right, however, to withdraw from any school or teacher the privilege of sending pupils into college on certificate.

Entrance examinations are held in June and September. (Circulars stating the days and the subjects of examination for each day can be had, after April 1st, on application to Mr. OTTO REUNING, Clerk to the College Faculty.) The subjects of examination are in part the same for all candidates, in part dependent upon the course that the candidate wishes to take in college.

Digitized by Google

FOR ALL CANDIDATES.

ENGLISH.—1st. A short composition, correct in spelling, punctuation, grammar, division by paragraphs, and expression, on one of several subjects to be announced at the time of the examination, and to be taken from the last-named of the following books, all of which (or the last-named and equivalents for the first three) must have been read by each candidate, viz., Shakespeare's *As You Like It* and *Midsummer Night's Dream*, Scott's *Rob Roy*, and Thackeray's *English Humorists*. 2d. Questions on the grammar, etymology and subject-matter of a passage to be taken from the same book as the subjects of composition are taken from. 3d. The correction of specimens of English bad in grammar or expression, with a brief statement of the principles on which the correction is made.

The following books indicate the amount and kind of knowledge required to pass this examination, viz., Abbott's *How to Parse*, or Murray's *Advanced Lessons in English Composition, Analysis and Grammar;* Strang's *Exercises in English;* McElroy's *Essential Lessons in English Etymology* (Chh. I.–III. and V.); and Williams's *Composition and Rhetoric by Practice.*

In 1890, the books to be read by each candidate will be Scott's *Quentin Durward*, Thackeray's *English Humorists*, Shakespeare's *Midsummer Night's Dream*, and Goldsmith's *Deserted Village;* in 1891, Scott's *Quentin Durward*, Goldsmith's *Deserted Village*, Shakespeare's *Merchant of Venice*, and Irving's *Bracebridge Hall.*

HISTORY.—Ancient History (Freeman's *General Sketch of History*, Chaps. I.–VI.). History of the United States. (Scudder or Johnston is suggested.)

MATHEMATICS.—Arithmetic (*including the Decimal System of Weights and Measures*). Algebra (*through Quadratic Equations*). Plane Geometry.

ADDITIONAL SUBJECTS FOR THE SEVERAL COURSES.

FOR THE COURSE IN ARTS.

GREEK.—Grammar. Prose Composition. (White's *First Lessons* covers the amount required.) Xenophon (*Four Books of the Anabasis*). Homer (*Three Books of the Iliad or the Odyssey*).

In 1890 and thereafter, an elementary knowledge of Greek accentuation will be required. Students are expected to pronounce by the written accent.

LATIN.—Grammar. Cæsar (*Four Books of the Gallic War*). Virgil (*Six Books of the Æneid*). Cicero (*Six Orations*). Prose Composition (as in Arnold's *Latin Prose Composition to the end of Exercise* 20).

Digitized by Google

FOR THE COURSE IN SCIENCE AND THE UNDERGRADUATE COURSE IN PHILOSOPHY.

MATHEMATICS.—Solid Geometry.

LATIN.—Cæsar, *Commentaries*, 3 books; Virgil, *Æneid*, 3 books; Latin Prose Composition.

FRENCH.—Grammar (as much as is indicated by the first forty-five "Practical Exercises" appended to Harrison's *French Syntax*). *Télémaque* (the first three books or an equal amount of matter from any good modern prose author).

GERMAN.—Ahn's *Method, Fisher's edition* (*First Course, pp.* 1–100; *Second Course, pp.* 1–64). Grimm's *Märchen* (Otis's edition).

Only two of these three languages are required of each student.

FOR THE COURSE IN FINANCE AND ECONOMY.

Students entering Freshman class with a view to electing the Course in Finance and Economy in Junior year pass in the subjects required for either the Course in Arts or that in Science.

PRELIMINARY EXAMINATIONS.—Candidates who wish to do so may be examined one year in advance of their entering college in any or all of the following subjects; viz., English Grammar, History of the United States, Arithmetic, Algebra (subjects contained in the first eleven chapters of Wentworth), Greek Grammar, Greek Prose Composition, and Xenophon, Latin Grammar and Latin Prose Composition, French Grammar, and German Grammar. In addition, candidates for the Course in Arts may be examined in Virgil, and those for the Course in Science or the Undergraduate Course in Philosophy in Plane Geometry. A record will be kept of these examinations, and credit be given for such of them as are passed satisfactorily. Preliminary examinations are ordinarily held only in June.

FOR ADVANCED STANDING, candidates must pass satisfactorily in all the subjects pursued by the lower class or classes; but students coming with letters of honorable dismission from other colleges, and showing that they have pursued successfully courses of study equivalent to those taken by the classes they wish to enter, are admitted without examination.

Duly authenticated *graduates* of other colleges are admitted without examination to any of the Courses upon giving evidence that their studies have been such as to fit them to pursue the particular course for which they apply.

Digitized by Google

COURSE OF STUDY.

FRESHMAN CLASS.

FOR ALL STUDENTS.

RHETORIC.—McElroy's *Structure of English Prose.* Readings from an English prose author, with Compositions on Themes selected from these Readings. Exercises in Reading and Speaking, with special reference to Expression, Emphasis, and Voice Culture. [Prof. McElroy. 2*]

HISTORY AND MATHEMATICS.—As specified below.

ADDITIONAL STUDIES FOR THE SEVERAL COURSES.

FOR THE COURSE IN ARTS.

GREEK.—Lysias. Euripides. Xenophon's *Œconomicus.* Plato (*Apology*). Greek Composition. Greek Moods and Tenses. [Prof. Lamberton. 4]

LATIN.—Selections from Livy and from Horace's Satires. [Prof. Jackson. 5]

HISTORY.—Freeman's *General Sketch of History.* [Prof. Thompson. 2]

MATHEMATICS.—Wentworth's *College Algebra.* Chauvenet's *Geometry* (Revised Edition, by Byerly). Wentworth's *Trigonometry.* [Mr. Wylie. 5]

FOR THE COURSE IN SCIENCE AND THE UNDERGRADUATE COURSE IN PHILOSOPHY.

MATHEMATICS.—Wentworth's *College Algebra.* Chauvenet's *Plane and Spherical Trigonometry.* Bowser's *Analytical Geometry* begun. [Prof. O. H. Kendall and Mr. Crawley. 5*]

DRAWING.—Geometrical and Isometrical Drawing (Minifie), and Drawing from the Flat. Free Hand Sketching. Use of the Scale and Protractor. Shading in India Ink. Graphical representations from Geometry. [Prof. Richards. 3]

HISTORY.—Myers' *Mediæval and Modern History.* [Mr. Cheyney. 2]

GERMAN.—Review of Grammar. *Fünftes Lesebuch* (Van Antwerp, Bragg & Co., publishers.) Storm's *Immensee.* [Mr. Rennert. 4]

FRENCH.—Harrison's French Syntax. Modern French Prose. Bôcher's *French Plays.* [Prof. Easton and Mr. Rennert. 4]

LATIN.—Sallust (*Catiline*). Selections from Ovid. [Mr. Cheyney. 3]

Each student elects two of these three languages.

---

* Hours per week.

Digitized by Google

FOR THE COURSE IN FINANCE AND ECONOMY.

Students who intend to enter the Wharton School in Junior year take any one of the above-named courses.

SOPHOMORE CLASS.

FOR ALL STUDENTS.

RHETORIC.—Six Compositions. Two or more Declamations. [Prof. McElroy.]

ENGLISH LITERATURE.—Lectures on Modern Prose Authors with Critical Readings. Gummere's *Poetics*. Lectures on the English Poets from 1789. [Prof. Schelling. 2]

PHYSICS.—Lodge's *Mechanics*. [Mr. Goodspeed. 2 hours, Second Term.]

CHEMISTRY, HISTORY, AND MATHEMATICS.—As specified below.

ADDITIONAL STUDIES FOR THE SEVERAL COURSES.

FOR THE COURSE IN ARTS.

GREEK.—Herodotus. Sophocles. Thucydides. Greek Composition. [Prof. Lamberton. 3]

LATIN.—Tacitus (*Agricola*, *Germania*, or *Annals*). Cicero (*De Senectute* or *De Officiis*). Horace (*Selected Odes*). [Prof. Jackson. 4]

MATHEMATICS.—Bowser's *Analytical Geometry*. Elementary Differential and Integral Calculus. [Prof. O. H. Kendall. 4]

HISTORY.—Freeman's *General Sketch*, completed. Constitution of the United States. (Lectures.) [Prof. Thompson. 2]

CHEMISTRY.—Inorganic and Organic Chemistry. (Recitations, with Experiments and Examinations.) [Prof. Smith. 2]

FOR THE COURSE IN SCIENCE AND THE UNDERGRADUATE COURSE IN PHILOSOPHY.

MATHEMATICS.—(1) Bowser's *Analytical Geometry*. Elementary Differential Calculus. [Mr. Crawley. 4]
(2) *Descriptive Geometry*. [Mr. Haupt and Mr. Franklin. 1]

Course (2) is not required of students in Philosophy or of those students in Science who propose entering the Wharton School in Junior year.

DRAWING.—Linear Perspective. Geometric and Isometric Drawing. Projection of Shadows. Architectural Detail and Ornament. Gothic Tracery. Shading in India Ink. Free Hand Drawing. [Prof. Richards. 3]

Students in Philosophy, and those students in Science who propose entering the Wharton School in Junior year, do not take Drawing.

CHEMISTRY.—Inorganic Chemistry. (Recitations with Experiments.) [Prof. Smith. 3]

Digitized by Google

HISTORY.—(1) Political and Constitutional History of Europe since 1789. [Mr. Cheyney. 1]
(2) American History. [Mr. Cheyney. 2]

Course (2) is required only of students in Philosophy and of those students in Science who propose entering the Wharton School in Junior year.

GERMAN.—Selections from Virchow and Holtzendorff's *Wissenschaftliche Vorträge*. Practical Exercises. Lessing's *Minna von Barnhelm*. [Prof. Seidensticker. 4]

FRENCH.—Modern Prose (continued). Molière. [Prof. Easton. 3]

LATIN.—Tacitus (*Agricola*). Selections from Horace. [Mr. Cheyney. 3]

Each student elects two of these three languages.

FOR THE COURSE IN FINANCE AND ECONOMY.

Students who intend to enter the Wharton School in Junior year take any one of the above-named Courses.

THE COURSE IN ARTS.

JUNIOR CLASS.

REQUIRED STUDIES,—

LOGIC AND PSYCHOLOGY.—Jevons's *Lessons in Logic*. Lotze's *Outlines of Psychology*. Lectures on Psychology. [Prof. Fullerton. 2]

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics*. Lectures and Recitations.) [Prof. Barker and Mr. Goodspeed. 4]

RHETORIC.—Six Compositions. [Prof. McElroy.]

ENGLISH LITERATURE.—Lectures on the Period of French Influence. Seminary. [Prof. Schelling. 2]

ELECTIVE STUDIES,—

Of group A, each Junior must take at least two studies, and of group B at least one, making his total number of hours per week, including required work, not less than fifteen nor, unless the consent of the Dean has first been had, more than eighteen.

A.

GREEK.—Demosthenes. Euripides. Plato (*Protagoras*). Aristophanes. Greek Antiquities. [Prof. Lamberton. 3]

LATIN.—Selections from Juvenal. Cicero (*De Officiis*, *De Finibus* or *De Amicitia*). Horace (*Epistles*). Reading at Sight. (Prof. Jackson. 3]

HEBREW.—Harper's *Elements* and *Method and Manual*. Selections from *Genesis* and *Judges*. Reading at Sight. English into Hebrew. [Mr. Montgomery. 2]

SANSKRIT.—Whitney's *Sanskrit Grammar*. Lanman's *Reader*. [Prof. Easton. 2]

ANGLO-SAXON.—Sweet's *Reader*. Selections from Orosius or the Chronicle. [Prof. McElroy. 2]

Digitized by Google

GOTHIC.—Stamm and Heyne's *Ulfilas*. [Prof. Seidensticker. 2]

In Hebrew, Sanskrit, Anglo-Saxon, and Gothic two classes will be formed each year, open to either Juniors or Seniors, according to proficiency.

GERMAN.—Eichendorff's *Aus dem Leben eines Taugenichts*. Schiller's *Maria Stuart*. Goethe's *Egmont*. Whitney's *Grammar and Exercises*. [Prof. Seidensticker. 3]

FRENCH.—Easy Prose. Harrison's *Syntax*. [Prof. Easton. 3]

ITALIAN.—Toscani's *Grammar*, with Exercises. Pellico (*Le mie prigioni*). Manzoni (*I promessi sposi*). [Mr. Rennert. 2]

B.

PURE MATHEMATICS.—Todhunter's *Theory of Equations*. Advanced Trigonometry and Analytical Geometry. Factorials and Determinants. [Prof. O. H. Kendall. 3]

HISTORY.—Church and State in America. Economic History of America. (Lectures). [Prof. Thompson. 2]

ENGLISH LANGUAGE.—Middle and Early Modern English. (Chaucer, Spenser, Shakespeare, Milton.) [Prof. McElroy. 2]

DECLAMATION.—Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

MINERALOGY.—The Systematic Description of Mineral Species. Their Geometric and Physical Properties. (Dana's *Manual*. Students handle the specimens.) [Prof. Kœnig. 2]

BOTANY.—General Principles of Structural and Physiological Botany. (Gray's *Text-book of Botany*.) [Prof. Rothrock. 1]

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat*.) [Prof. Jayne. 2]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Vertebrates. (Lectures.) [Prof. Leidy. 1]

SENIOR CLASS.

REQUIRED STUDIES,—

PHILOSOPHY AND ETHICS.—Berkeley's *Principles of Human Knowledge*. Studies in the History of Philosophy. Fullerton's *Conception of the Infinite*. Ethics. [Prof. Fullerton. 3]

HISTORY.—Lectures on the Philosophy of History and on Modern History since 1789. [Prof. Thompson. 2]

RHETORIC.—Six Compositions. [Prof. McElroy.]

ENGLISH LITERATURE.—Lectures on the Elizabethan Period and the Age of Chaucer. Seminary. [Prof. Schelling. 2]

SOCIAL SCIENCE.—International Law. (Lectures.) Thompson's *Elements of Political Economy*. [Prof. Thompson. 1½]

Digitized by Google

ASTRONOMY.—Newcomb's Astronomy. [Dean Kendall. 1½]

ELECTIVE STUDIES,—

The same rule holds for the Senior electives as for those of Junior year.

A.

GREEK.—Homer, Pindar, Æschylus, Aristophanes. Greek Literature. [Prof. Lamberton. 2]

LATIN.—Cicero (*Tusculanæ*) or Lucretius (*Selections*). Horace (*Ars Poetica*). Reading at Sight. [Prof. Jackson. 3]

HEBREW.—Selections from *Pentateuch*, *Psalms*, and *Prophets*. Syntax in Mitchell's Gesenius' *Hebrew Grammar*. Reading at Sight. [Mr. Montgomery. 2]

SANSKRIT.—Lanman's *Reader*. Selected Hymns from the Veda. [Prof. Easton. 2]

ANGLO-SAXON.—*Béowulf*. Cook's Sievers' *Grammar of Old English*. Skeat's *Principles of English Etymology*. [Prof. McElroy. 2]

GOTHIC.—Stamm and Heyne's *Ulfilas*. [Prof. Seidensticker. 2]

In Hebrew, Sanskrit, Anglo-Saxon, and Gothic two classes will be formed each year, open to either Juniors or Seniors according to proficiency.

GERMAN.—Lessing's *Nathan der Weise*. Goethe's Prose. Grillparzer's *Sappho*. [Prof. Seidensticker. 3]

FRENCH.—Modern Drama. Molière. French Philology and the History of French Literature. [Prof. Easton. 2]

OLD FRENCH.—Selections. (Clédat's or Constans' Chrestomathy. *La Chanson de Roland*.) [Prof. Easton. 2]

ITALIAN.—Dante (Selections from the *Inferno*). Boccaccio (Selections). Lectures on Italian Literature. [Mr. Rennert. 2]

B.

MATHEMATICS.—Advanced Differential and Integral Calculus. Differential Equations. Theory of Probabilities. [Prof. O. H. Kendall. 2]

PHYSICS.—Mathematical Physics. [Prof. Barker. 2]

ENGLISH LANGUAGE.—Middle and Early Modern English (Chaucer, Spenser, Shakespeare, Milton). [Prof. McElroy. 2]

DECLAMATION.—Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

LINGUISTICS.—Whitney's *Language and the Study of Language*, with Lectures and Exercises in comparison, especially of Greek, Latin, and English forms. [Prof. Easton. 1]

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat*.) [Prof. Jayne. 2]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Invertebrates. (Lectures.) [Prof. Leidy. 1]

HISTOLOGY.—The Structure of Animal Tissues and Organs (Schaffer's *Essentials of Histology*. Lectures). [Prof. Ryder. 2 hours, First Term.]

GEOLOGY.—Stratigraphy, in connection with Palæontology of the Rock Systems. Laws of Dynamic Geology (Dana's or Leconte's *Manual*). Prof. Kœnig. 2]

THE TECHNICAL COURSES IN THE TOWNE SCIENTIFIC SCHOOL.

The object of the Courses in this School (named from its largest benefactor, John Henry Towne) is to give a thorough scientific education with technical training. They cover three years, termed (respectively) Junior, Senior, and Post-Senior. Of these, the last is in the main practical. The Courses are:—

I. PURE AND APPLIED CHEMISTRY.
II. METALLURGY AND MINING.
III. CIVIL ENGINEERING.
IV. DYNAMICAL ENGINEERING.
V. MECHANICAL DRAWING AND ARCHITECTURE.

JUNIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

MATHEMATICS.—Differential and Integral Calculus. [Mr. Crawley. 4]

PHYSICS.—Sound, Heat, Light, and Electricity. (Stewart's *Physics*. Lectures and Recitations.) [Prof. Barker and Mr. Goodspeed. 4]

GERMAN.—Pinner's *Gesetze der Naturerscheinungen*. [Prof. Seidensticker. 2]

FRENCH.—*Tableaux de la Révolution française*. Molière. [Prof. Easton. 2]

Of these two languages each Junior elects one.

RHETORIC.—Six Compositions. [Prof. McElroy.]

DECLAMATION (*Optional*).—Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

ENGLISH LITERATURE.—Lectures on the Period of French Influence and the Elizabethan Era. [Prof. Schelling. 2]

LOGIC.—Jevons's *Lessons in Logic*. Ethics. [Prof. Fullerton. 2]

(*Not required of students in Chemistry or in Metallurgy and Mining.*)

HISTORY.—Economic and Social History of Europe since 1789. [Mr. Cheyney. 2]

(*Not required of students in Metallurgy and Mining.*)

Digitized by Google

1. *Studies pursued by the Chemical Section.*

CHEMISTRY. — Laboratory Practice and Recitations in Analytical Chemistry. [Prof. Smith and Mr. Frankel. 12] Lectures on Organic Chemistry. [Prof. Sadtler. 2]

MINERALOGY.—Chrystallography. Native Elements and Sulphides. [Prof. Kœnig. 2]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING.—Construction of parts of Mines, and of Mining machinery, from notes and sketches. [Prof. Kœnig. 5]

MINERALOGY.—Same as First Section. [Prof. Kœnig. 2]

GEOLOGY.—Lithology. Palæontology of Protozoa, Anthozoa, and Echinodermata. [Prof. Kœnig. 1]

SURVEYING AND DRAWING.—Same as Third Section.

CHEMISTRY.—Qualitative Analysis. [Prof. Smith and Mr. Frankel. 6]

3. *Studies by the Civil Engineering Section.*

ENGINEERING.—Railroad Location. Spherical Projections, Shades, Shadows, and Perspective. [Mr. Haupt. 2]

STATICS.—Roof and Bridge Trusses, and Merriman's *Mechanics of Materials*. [Messrs. Haupt and Franklin. 4]

DRAWING.—Topographical Charts, in ink and colors. Details of frames, joints, etc. [Prof. and Mr. Haupt. 2]

SURVEYING.—Field Practice, including Chain Surveying, Use of Compass, Transit and Plane Table in measuring lines and areas, Traversing, Location of Roads, Drains, etc., on Topographical Charts. Recitations from Gillespie's *Land and Higher Surveying*, and *Earthwork Formulæ*, Hydrographical, Mine, and Government Surveying. [Prof. Haupt. 4]

CHEMISTRY.—Qualitative Analysis. [Prof. Smith and Mr. Frankel. 3]

4. *Studies pursued by the Dynamical Engineering Section.*

STATICS.—The application of the principles of Statics to Rigid Bodies. The Elasticity and Strength of Materials. Forms of uniform strength. Theory of Framed Structures. Stability of structures. Theory of the Arch. Strains in parts of mechanism. Mr. Earle. 2 hours, First Term.]

HYRDOSTATICS.—The equilibrium and pressure of fluids, as water, air, steam, etc. The equilibrium of fluids with other bodies; stability of vessels; determinations of specific gravity; use of hydrometers, manometers, gauges, etc. [Mr. Earle. 2 hours, Second Term.]

GRAPHICAL STATICS.—General theory and application to roof and bridge trusses. [Mr. Franklin. 2]

KINEMATICS.—General mathematical theory of slide-valve and link motions and its practical application in designing mechanism of valve motions for automatic and marine engines. [Prof. Spangler. 2]

Digitized by Google

DRAWING. — Elementary mechanical drawing. Use of instruments. Copying working drawings, tracing and blue-printing. Making working sketches and drawings of pieces of machinery from the models. [Prof. Spangler. 2]

SHOP WORK.—Manual training in pattern and machine work. [Spring Garden Institute. 7½]

5. *Studies pursued by the Architectural Section.*

ARCHITECTURE.—Classical Architecture and Mediæval Ornament. Shading in India Ink. Sketching. [Prof. Richards. 9]

ENGINEERING.—Graphical Statics. [Mr. Franklin. 2]

SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

PHYSICAL SCIENCE.—Practical Physics. (Lectures and Recitations.) [Prof. Barker. 3]

PHYSICAL LABORATORY (*Optional*).—[Prof. Barker and Mr. Goodspeed. 4]

ASTRONOMY.—Newcomb's *Astronomy*. [Dean Kendall. 1½]

METALLURGY.—Theory of Metallurgical Processes. Theory of Dressing and Mechanical Treatment of Ores. [Prof. Kœnig. 1]

SOCIAL SCIENCE.—International Law. (Lectures). Thompson's *Elements of Political Economy*, and Lectures. [Prof. Thompson. 1½]

RHETORIC.--Four Compositions. [Prof. McElroy.]

DECLAMATION (*Optional*).—Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

MATHEMATICS (*Optional*).—Methods of Computation. [Prof. O. H. Kendall. 1]

1. *Studies pursued by the Chemical Section.*

QUANTITATIVE ANALYSIS.—Recitations and Laboratory Practice in Gravimetric and Volumetric Analysis. [Prof. Smith and Mr. Frankel. 5]

APPLIED INORGANIC CHEMISTRY.—Lectures with reviews, combined with excursions to chemical works. [Prof. Sadtler. 2]

APPLIED ORGANIC CHEMISTRY.—Lectures with reviews, combined with excursions to works. [Prof. Sadtler. 2]

ORGANIC LABORATORY.—Making of Organic Preparations. Proximate and Ultimate Organic Analysis. [Prof. Sadtler and Dr. Keller. 6]

CHEMICAL SEMINARY.—[Profs. Sadtler and Smith, Dr. Keller, and Mr. Frankel. 1]

Digitized by Google

MINERALOGY AND ASSAYING.—Same as Second Section. [Prof. Kœnig. 4]

METALLURGY.—Theory of Metallurgical processes; theory and construction of furnaces. Dressing of Ores considered theoretically and practically. Demonstration of the principal metallurgical processes by furnace practice. [Prof. Kœnig. 2]

MECHANICAL DRAWING.—With special reference to chemical applications. [Prof. Spangler. 2]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING ENGINEERING.—Lectures on the methods used in prospecting for, and in developing ore and coal deposits. [Prof. Kœnig. 2] Drawing and modelling (wood and plaster) of topographical and underground surveys. [Mr. Pugh. 3]

METALLURGY.—Calculating and drawing of furnaces, ore dressing machines, etc., from notes and sketches, after approved patterns. Experimental treatment of the fundamental processes of oxidation, reduction and fusion. [Prof. Kœnig. 2]

MINERALOGY.—Oxides, Chlorides, and Fluorides, Sulphates, etc., Phosphates, etc., Carbonates and Silicates. [Prof. Kœnig. 2]

ASSAYING and Blow-pipe Analysis.—[Prof. Kœnig and Mr. Pugh. 4]

ANALYTICAL CHEMISTRY.—Recitations and Laboratory Practice in Quantitative Analysis. [Prof. Smith and Mr. Frankel. 4]

PALÆONTOLOGY of Mollusca and Crustacea.—[Prof. Kœnig. 1]

3. *Studies pursued by the Civil Engineering Section.*

DRAWING.—Shades, Shadows, and Perspective; Platting field notes; Engineering Construction and Stereotomy. [Prof. and Mr. Haupt. 2]

ARCHITECTURE.—Ornament. History of Architecture. Decoration and Shading. [Prof. Richards. 4]

SURVEYING.—A complete course in practical topography, including special instruments and field sketching. Field practice. Reconnaissance. Use of Prismatic Compass, Level, Solar Transit, Repeating Theodolites, and Heliotropes. Sketching. [Mr. Franklin. 3]

GEODESY.—Measurement of Bases, Triangulation, Determination of Meridian, Latitude, Longitude, Time, and Azimuth. [Prof. Haupt. 1]

ENGINEERING.—Mechanics of Engineering, embracing the Statics of Rigid Bodies, Determination of the Centres of Gravity, Moments of Flexure, Rupture, Resistance, Torsion, Strength and Properties of Materials, etc. Nomenclature of, and construction in Masonry, Timber, Iron and Steel, as applied to Light-houses, Bridges and Roofs, Depots and other engineering structures. Equilibrium of

Digitized by Google

Arches and Retaining Walls. Tunneling and Earthworks, with the required plant and organization. Sea-coast and Harbor improvements. Canal and River improvements. Transportation, etc. [Prof. Haupt and Assistants. 7]

MINERALOGY.—With Second Section. [Prof. Kœnig. 2]

BLOW-PIPE ANALYSIS.—(*Optional.*)

4. *Studies pursued by the Dynamical Engineering Section.*

KINEMATICS.—Laws of motion. Elementary combinations of pure mechanism. Pulleys and belts. Trains of gearing and forms of the teeth of wheels. Link work. [Prof. Spangler. 2]

STEAM ENGINE.—Determination of proper proportions for cylinders, valves, pistons, rods, shafts, fly-wheels, etc., and making rough sketches and working drawings from original designs. [Prof. Spangler. 2]

STEAM BOILERS.—Value of fuels. Determinations of the proper proportion for grate and heating surface, area and height of chimneys, thickness of shell, size of braces, etc., for various forms of boilers, and making rough sketches and working drawings from original designs. [Mr. Earle. 2]

SHOP WORK.—Making patterns from working drawings and finishing castings, and making, fitting, and finishing parts of machinery. [Spring Garden Institute. 7½] Hand and machine tools and their principles. [Prof. Spangler. 2]

HYDRODYNAMICS.—Flow of water. Water meters. Turbine, overshot, undershot, and breast wheels. [Mr. Earle. 2]

ELECTRICITY.—The measurement and discussion of electrical quantities, and their application to the construction and use of galvanometers, batteries, accumulators, etc. [Mr. Peterson. 1]

ENGINEERING APPLIANCES.—Lectures on steam engine indicators, injectors, gauges, safety valves, oil cups, pumps, speed indicators, dynamometers, testing machines, etc. [Mr. Earle. 1]

5. *Studies pursued by the Section in Drawing and Architecture.*

DRAWING AND ARCHITECTURE.—The study of Executed Works and of Buildings in Progress. History of Architecture, illustrated by views of structures of all ages. Ornaments. Shading in India Ink. Sketching. [Prof. Richards. 14]

MINERALOGY.—Same as Second Section. [Prof. Koenig. 2]

ENGINEERING.—Same as Third Section, so far as to include strength and properties of materials. [Prof. Haupt. 2]

POST-SENIOR CLASS.

STUDIES PURSUED BY THE WHOLE CLASS.

GEOLOGY.—Structural Geology of North America with reference to

Digitized by Google

that of Europe, and with the principal minerals and fossils, distribution of metals and fuels. History of Geology. [Prof. Kœnig. 2]

1. *Studies pursued by the Chemical Section.*

LECTURES ON APPLIED ORGANIC CHEMISTRY.—Continued from Senior Year. With excursions to works. [Prof. Sadtler. 2]

INDUSTRIAL CHEMICAL LABORATORY.—Experimental Studies in Applied Inorganic and Organic Chemistry. [Prof. Sadtler and Dr. Keller. 10]

METALLURGICAL, ORGANIC OR ANALYTICAL LABORATORY (*Elective*). —[Profs. Kœnig, Sadtler, or Smith. 8]

ADVANCED CHEMICAL THEORY.—Lectures. [Prof. Smith. 2]

SPECIAL METALLURGY.—With Second Section. [Prof. Kœnig. 4]

PRINCIPLES OF MECHANISM.—Lectures, with special reference to their applications in Chemistry. [Mr. Earle. 1]

CHEMICAL SEMINARY.—[Profs. Sadtler and Smith, Dr. Keller, and Mr. Frankel. 1]

2. *Studies pursued by the Metallurgical and Mining Section.*

MINING ENGINEERING.—Lectures on ventilation and drainage of mines. Special mining problems in faulted strata, more especially in coal mining. (The section goes for two weeks to the anthracite coal region, to make an underground survey and to learn how to examine a mine and report on its condition.) [Prof. Kœnig. 2]

METALLURGY.—Lectures on the production of pig, weld, and temper iron and of silver, copper, and lead. Experimental testing of metallurgical processes. Electricity applied to metallurgy. Visits to metallurgical works in the city and state. [Prof. Kœnig. 4]

GEOLOGY.—The topographic and structural relations of the principal ore deposits in America and Mexico. [Prof. Kœnig. 7]

ANALYTICAL CHEMISTRY.—Gravimetric and Volumetric Analysis, with special reference to minerals, ores, and metallurgical products. Gas Analysis. Lectures continued. [Prof. Smith. 7]

3. *Studies pursued by the Civil Engineering Section.*

PRACTICAL ENGINEERING.—Observation tours, for collection of data, and critical reports on works in process of construction. Estimates of cost, prices of labor and materials. Construction and arrangement. Preparation of contracts and specifications. Theses for graduation. Sanitary Engineering. [Prof. Haupt. 9] Laws of Business and of Contracts. [Mr. Haupt. 1]

DRAWING.—Details of Engineering Works, Composition, Plans, Sections, Elevations, Profiles and Cross-sections. Working drawings from data collected in the field. [Prof. Haupt. 6]

Digitized by Google

HYDROMECHANICS.—Recitations and Lectures. [Prof. Haupt. 1]

MODELLING.—Construction of trusses for bridges, roofs, girders, etc. Problems in stone-cutting. Tunnels. [Prof. Haupt. 2]

ARCHITECTURE.—Shading, Decoration. History of Architecture (continued). [Prof. Richards. 4]

4. *Studies pursued by the Dynamical Engineering Section.*

HYDRODYNAMICS.—Continuation of work of Senior year. Laboratory work during second term. [Mr. Earle, 2 hours. Laboratory, Second Term, 3 hours.]

THERMODYNAMICS.—Mechanical theory of heat. Application to steam, air, and gas engines, and refrigerating machines. [Prof. Spangler. 3] Laboratory work,—testing boilers, engines, gauges, and indicators, determining duty of pumps and injectors, calorimetric work. [Prof. Spangler. 6]

ELECTRODYNAMICS.—Measurement of electrical quantities and their application to the theory, construction, and use of dynamos, motors, galvanometers, batteries, etc. [Mr. Peterson. 5] Laboratory work, wiring, the operation and testing of dynamo and storage batteries, photometry, calorimetry, measurement of currents, insulation, etc. [Mr. Peterson. 6]

MARINE ENGINEERING AND NAVAL ARCHITECTURE.—Descriptive lectures on marine engines. [Prof. Spangler. 1] Special instruction when desired.

DESIGNING.—Continuation of Designing from Senior year after shop visits are discontinued. [Prof. Spangler. 2 hours. Mr. Earle. 2 hours for 18 weeks.]

VISITS TO MANUFACTURING ESTABLISHMENTS.—Students are required to visit various machine-shops, foundries, iron and steel rolling mills, shipyards, electric light plants, etc., and to make reports, illustrated, on general arrangement of plant, arrangement of power, tools, etc., in shops, descriptions of particular machines and processes. [16 weeks, 1 visit per week.]

CONTRACTS AND SPECIFICATIONS.—Methods of drawing specifications and contracts for engines, boilers, foundations, etc. Making estimates as to cost, weight, etc. [Mr. Earle. 1]

THESES.—Experimental work in preparation for Theses will be given special attention during the second term, but the laboratory will be open for this purpose throughout the year.

5. *Studies pursued by the Section in Architecture and Drawing.*

ARCHITECTURE.—Elements of design and principles of composition. Ornament of all styles. Sketching and measurement of works executed and in progress, building materials and processes. Specifications. Contracts. History of Architecture (concluded). [Prof. Richards. 12]

Digitized by Google

DRAWING.—Plans, Elevations, and Sections of original designs. Exercises with Perspective Views. Water-color. Sketching. [Prof. Richards. 9]

ENGINEERING.—Studies of Construction in Masonry, Timber, Iron, and Steel. Roof Trusses, Girders, etc. Experiments on Strength of Materials, Beams, and Trusses. [Prof. Haupt. 4]

METHODS OF STUDY.

Instruction is thoroughly practical. It is given by lectures and recitations, and in the Laboratories and the Drawing and Model Rooms. These are open to the students all day.

In CHEMISTRY, the Juniors receive instruction in organic chemistry, mineralogy and qualitative analysis. They also begin work in the laboratories by making the characteristic reactions of inorganic bases and acids, as well as easy qualitative separations. Occasional written reports on the results of their work must be made.

The Seniors receive instruction by lectures and recitations in all branches of quantitative analysis, applied chemistry, metallurgy, and organic and theoretical chemistry. Practical work, embracing all of the above-named branches, is continued. A thesis on some chemical subject is required at the end of the year.

During the first term of Post-Senior year, the work of Senior year may be continued, if deemed advisable. In the meanwhile the subject for thesis must be chosen in order to allow the student time to read up all accessible matter relating to it, so that the greater portion of the second term can be devoted to the necessary experimental researches.

The Seniors and Post-Seniors attend courses of lectures on the applications of Inorganic and Organic Chemistry in the Industrial Arts. These courses are fully illustrated by lantern projections, and by suites of specimens from the chemical collections. The classes also make excursions to chemical works.

Students in METALLURGY and MINING are trained to take intelligent care of the ever growing, important interests represented by those industries. In recognition of the extent of knowledge embraced in this field, they are given the option of devoting themselves more particularly to either branch. Those

Digitized by Google

who incline to become managers of mines, or examining and reporting engineers, will take more studies in civil and mechanical engineering, and those who possess greater apitude for chemical studies will devote themselves rather to experimental Metallurgy; whilst the lectures provided for the course are participated in by all. A greater thoroughness is expected to result from this provision. This instruction aims to develop the student's power of self-action and initiative.

Students in CIVIL ENGINEERING are instructed by recitations, lectures, and practical work. Afternoons and Saturdays are devoted to drawing and practical work in the shop, or to surveying or visiting public or private works, manufactories, etc. During the last year, the time is devoted largely to examinations and reports upon engineering works in process of construction; to making estimates and designs for new projects, from data collected in the field, and to the preparation of Theses.

In *visiting shops and manufactories*, students are required to collect all the practical information possible, and to embody it in a written report, noting particularly any new or special features for economizing time or materials, improved methods of assembling parts, etc., as well as the general plant, apparatus, and facilities for receiving and shipping materials.

The *field practice* embraces the various problems in chain surveying, the measurement of areas, and the computation of results; line surveys and location, cross sections and levels for estimating quantities, hydrography, topography with the plane-table, and the solution of such geodetic problems as relate to the orientation of maps.

The *Course in Drawing* includes the projection of maps, various methods of representing Topography, conventional signs, problems in shades, shadows and perspective, details of framing, composition, general drawing for constructions in wood, stone and iron, special designs, working drawings for modelling, platting, drawing of profiles and cross sections, and drawing for theses.

Students of DYNAMICAL ENGINEERING are required to give particular attention to the kinematics of mechanism, to the conditions under which work and power act, and the means of regu-

Digitized by Google

lating and transmitting the same, to the problems of hydraulics and hydraulic motors, and to the mechanical theories of heat and electro-dynamics with applications to the steam engine, etc., as will appear from the detailed course of study already given.

Special attention is given to the execution of drawings, first from designs and models, and afterwards from calculation, as well as to the methods of casting and working in iron, and of making and using machine tools.

Adequate instruction is also provided in Marine Engineering and Naval Architecture.

Special instruction in that part of Electrical Engineering which requires a knowledge of Dynamics is given to those who wish it in Senior and Post-Senior years. For this course a certificate of proficiency will be awarded, in addition to the Degree of Mechanical Engineer.

A special Laboratory is devoted to measurements in Thermodynamics, Electrodynamics, and Hydrodynamics.

The course in manual training covers three afternoons a week for two years. The third year is given to practical work in the Dynamic Laboratory, to special technical work, and to the preparation of a Thesis.

The instruction in PHYSICS extends over three years. In Sophomore year the class studies the Mechanics of Physics. In Junior year the subjects treated are Sound, Heat, Light, and Electricity, the exercises consisting of lectures, illustrated by experiments, with recitations. In Senior year, instruction is given in Physical Measurement. Instruction in the Physical Laboratory is maintained throughout the year. The course is optional and is intended for such students only as are competent to take it with advantage.

LIBRARY.

The Evans Rogers Library is composed of standard works on drawing, mathematics, astronomy, physics, surveying and explorations, as well as of technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering. It con-

Digitized by Google

tains, also, a valuable collection of Reports of American, English, and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams and drawings.

THE COURSE IN PHILOSOPHY FOR UNDERGRADUATES.

In this course special attention is paid to the modern languages and natural science. A large amount of time is devoted to Biological studies, with practical laboratory work, under Prof. Joseph Leidy, Director of the Biological Department, and the other members of the Biological Faculty. The new Biological building, with its lecture-rooms, laboratories for general and special work, its cabinets, herbarium, library, and abundant supplies of material for practical work, affords ample facilities for these studies.

JUNIOR CLASS.

REQUIRED STUDIES,—

LOGIC AND PSYCHOLOGY.—Jevons's *Lessons in Logic.* Ethics. Lotze's *Outlines of Psychology.* Lectures on Psychology. [Prof. Fullerton. 2]

RHETORIC.—Six Compositions. [Prof. McElroy. 2]

ENGLISH LITERATURE.—Lectures on the Period of French Influence. [Prof. Schelling. 2]

PHYSICS.—Sound, Heat, Light, Electricity. (Stewart's *Physics.* Lectures and Recitations.) [Prof. Barker and Mr. Goodspeed. 4]

CHEMISTRY.—Inorganic Analytical Chemistry. (Lectures and Laboratory Exercises.) [Prof. Smith. 6]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Vertebrates. (Lectures.) [Prof. Leidy. 1]

GENERAL BIOLOGY. Careful Study in the Laboratory of a Series of Plants and Animals. (Dolley's *Syllabus.*) [Prof. Dolley. 8]

ELECTIVE STUDIES,—

Of the elective studies each Junior or Senior must take enough to make his total number of hours per week not less than twenty-four, nor more than twenty-six.

ENGLISH LANGUAGE.—Middle and Early Modern English. (Chaucer, Spenser, Shakespeare, Milton.) [Prof. McElroy. 2]

HISTORY.—Economic and Social History of Europe since 1789. [Mr. Cheyney. 2]

Digitized by Google

MINERALOGY.—The Systematic Description of Mineral Species. Their Geometric and Physical Properties. (Dana's *Manual.*) [Prof. Kœnig. 2]

ORGANIC CHEMISTRY,—Lectures. [Prof. Sadtler. 2]

ANATOMY.—Demonstrations of the Anatomy of a Typical Mammal. (Mivart's *The Cat.*) [Prof. Jayne. 2]

BOTANY.—Elementary Laboratory Exercises in Structural and Systematic Botany. (Gray's *Text-Book* and *Manual.*) [Prof. Wilson. 4 hours, First Term. Prof. Rothrock. 4 hours, Second Term.]

DECLAMATION (*Optional*). — Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

SENIOR CLASS.

REQUIRED STUDIES,—

PHILOSOPHY AND ETHICS.—Berkeley's *Principles of Human Knowledge.* Studies in the History of Philosophy. Fullerton's *Conception of the Infinite.* Ethics. [Prof. Fullerton. 3]

SOCIAL SCIENCE.—International Law. (Lectures.) Thompson's *Elements of Political Economy.* [Prof. Thompson. 1½]

RHETORIC.—Six Compositions. [Prof. McElroy.]

ENGLISH LITERATURE.—Lectures on the Elizabethan Period and the Age of Chaucer. [Prof. Schelling. 2]

ZOÖLOGY.—Introduction to General Zoölogy. The Structure, Classification and Distribution of the Invertebrates. (Lectures.) [Prof. Leidy. 1]

ELECTIVE STUDIES,—

ENGLISH LANGUAGE.—Middle and Early Modern English. (Chaucer, Spenser, Shakespeare, Milton.) [Prof. McElroy. 2]

ASTRONOMY.—(Newcomb's *Astronomy.*) [Dean Kendall. 1½]

ORGANIC CHEMISTRY.—Laboratory Exercises in making Organic Preparations. [Prof. Sadtler. 6]

GEOLOGY.—Stratigraphy in connection with Palæontology of the Rock Systems. Laws of Dynamic Geology. (Dana's or Le-conte's *Manual.*) [Prof. Kœnig. 2]

ANATOMY.—Demonstrations of Anatomy of the Typical Mammal. (Mivart's *The Cat.*) [Prof. Jayne. 2]

ANATOMY.—The Demonstrations with a Course in Dissection. [Prof. Jayne. 8]

ZOÖTOMY.—Practical Exercises in Comparative Anatomy. [Prof. Jayne. 4]

HISTOLOGY.—The Structure of Animal Tissues and Organs. (Schaffer's *Essentials of Histology.* Lectures.) [Prof. Ryder. 2 hours, First Term.]

HISTOLOGY.—The Lectures with Laboratory Exercises. [Prof. Ryder. 8 hours, First Term.]

EMBRYOLOGY.—The Principles of Comparative Embryology. (Lectures.) [Prof. Ryder. 2 hours, Second Term.]

EMBRYOLOGY.—The Lectures with Laboratory Work on the Development of the Chick and the Rabbit. (Foster and Balfour's *Elementary Embryology.*) [Prof. Ryder. 8 hours, Second Term.]

PHYSIOLOGY.—Lectures and Demonstrations. (Yeo's Text-book.) [Dr. Hare. 2]

BOTANY.—General Principles of Structural and Physiological Botany. (Lectures. Gray's *Text-book of Botany.*) [Prof. Rothrock. 1]

BOTANY.—Economic Botany. (The Plants used in Medicine. The Adulteration of Foods and Drugs.) Laboratory Exercises. [Prof. Rothrock. 6 hours, Second Term.]

BOTANY.—Advanced Laboratory Course in Structural Botany. [Prof. Wilson. 6 hours, First Term.]

BOTANY.—Laboratory Exercises in Plant Physiology. [Prof. Wilson. 6 hours, Second Term.]

DECLAMATION (*Optional.*)—Exercises in Debating and Original Speaking. [Prof. McElroy. 1]

Instruction is given by lectures and recitations, and in the Laboratories of the College and Biological buildings. The latter are open all day, a part of the work by the higher classes being done in the afternoon.

The study of the English Language and Literature extends through the entire course, and is intended to be thorough and critical. In Chemistry, a course of analytical work in the laboratory is required in Junior year, and is followed by an elective laboratory course in Senior year.

The instruction in General Biology is in the form of practical laboratory exercises, accompanied by explanatory lectures, and comprises the study of the structure, functions, and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena, manifested in the different forms of living matter, before beginning the study of either Botany or Zoölogy. The series studied are: (1) Amoeba, Paramæcium, Vorticella, Bacterium, Yeast-plant, and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Bracken-fern, and Bean-plant, as exhibiting the structure and activities of plants; (3) These compared with

Digitized by Google

Sponge, Hydra, Star-fish, Earthworn, Leech, Cyclops, Crayfish, Cockroach, Clam, Squid, Amphioxus, Skate, Cod, Frog, Snake, Terrapin, Pigeon, and Rabbit, as animals.

The course in Mammalian Anatomy consists of lectures on the methods of anatomical investigation, a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy.

The work in Botany during the Junior year consists in the study of the microscopic structure of plants, followed by practical exercises in determining a selected series of forms.

In the first term of Senior year all students who elect Botany study the microscopic structure of tissues and organs. In the secohd term a further election is permitted between Economic Botany and Physiological Botany. The work in the first course consists of practical exercises in forestry, adulterations of foods and drugs, medicinal plants, etc.; in the second course, of the life history of plants.

The lectures on Systematic Zoölogy begin in Junior and continue through Senior year. They embrace the structure, classification and distribution of animals, one year being devoted to the study of the invertebrates, the next to the vertebrates. The laboratory course in Zoötomy consists in the dissection of additional types, of series of organs, or special parts chosen by the instructor.

Histology is taught, during the first term of Senior year, mainly by practical work with the microscope. The structure of animal tissues and organs, and the methods of examining and preparing microscopic specimens, are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists of lectures on the Embryology of the chick, with laboratory exercises in the preparation and study of the principal stages of development.

The instruction in the elements of Human and Comparative Physiology embraces the following subjects: nutrition, foodstuffs and digestion, circulation, respiration, reproduction, muscular function (including locomotion, speech, etc.), and the functional activity of nerve and brain.

Digitized by Google

THE COURSE IN FINANCE AND ECONOMY

IN THE

WHARTON SCHOOL.

This Course serves for the University of Pennsylvania the same purposes as are served in other institutions by their Departments or Faculties of History and Politics, or by the so-called Schools of Political Science. In addition, however, to the courses usually provided in such departments, this Institution offers also a course, at once liberal and practical, which is specially designed for those who intend to enter upon business pursuits.

The founder of the School expressed the desire that it should offer facilities for obtaining:

(1) *An adequate education in the principles underlying successful civil government.*

(2) *A training suitable for those who intend to engage in business or to undertake the management of property.*

In order to realize these objects, courses have been provided in Political Economy, Social Science, Finance, Statistics, Political Science, Administrative and Constitutional Law of the United States and of leading foreign countries, Comparative Politics, Political and Constitutional History of the United States, Theory and Practice of Accounting, and Mercantile Law and Practice.

It will be observed that nearly all the courses above enumerated are such as may fairly lay claim to be called liberal branches *par excellence*, and such as every American citizen should pursue in outline at least as a preparation for the duties of citizenship.

They are, however, also studies which form a leading constituent in the special preparation for certain callings, such as the Teaching of History and Politics, Journalism, Business, Public Service and Law.

The attention, therefore, of students who are looking forward to entering upon these or similar lines of work is specially invited to the facilities of this Institution.

Digitized by Google

JUNIOR CLASS.

FIRST TERM.

POLITICAL SCIENCE.—Theory of the State. Public Functions. (Lectures and Text-book.) [Prof. James. 3]

AMERICAN POLITICS.—Colonial History. History of the Public Domain. Distribution of Population. Government. Social History. Johnston's *History of the United States.* Preston's *Documents Illustrative of American History.* Preparation of Maps. Preparation of Boundary, Population, and Economic Maps. [Prof. McMaster. 3]

POLITICAL ECONOMY.—Thompson's *Elements of Political Economy.* [Prof. Thompson. 2]

CURRENCY AND BANKING.—Jevons's Money and the Mechanism of Exchange. [Prof. Patten. 3]

LOGIC.—Jevons's *Lessons in Logic.* [Prof. Fullerton. 2]

HISTORY.—Church and State in America. (Lectures.) [Prof. Thompson. 2]

INTERNATIONAL LAW.—Lectures. [Prof. Hare. 2] (*Optional.*)

METHODS OF ACCOUNTING.—[Mr. Falkner. 2]

SECOND TERM.

CIVIL GOVERNMENT.—Elements of the Constitutional and Administrative Law of the Federal and State Governments. (Lectures and Text-book.) [Prof. James. 3]

AMERICAN POLITICS.—Washington to Jackson. Johnston's *American Politics.* Lectures, Maps, etc. [Prof. McMaster. 3]

POLITICAL ECONOMY.—Walker's *Political Economy.* [Prof. Patten. 3]

HISTORY.—Economic History of the United States. [Prof. Thompson. 2]

MORAL PHILOSOPHY.—Janet's *Elements of Morals.* Lectures on Ethics. [Prof. Fullerton. 2]

METHODS OF ACCOUNTING.—[Mr. Falkner. 2]

SENIOR CLASS.

FIRST TERM.

SOCIAL SCIENCE.—Compositions and Lectures. [Prof. Thompson. 3]

POLITICAL ECONOMY.—Mill's *Political Economy.* [Prof. Patten. 3]

AMERICAN CONSTITUTIONAL HISTORY.—First Period, 1789–1825. Lectures. (Von Holst's *Constitutional History of the United States.* Bancroft's *History of the Constitution.*) [Prof. McMaster. 4]

Digitized by Google

FINANCE.—Principles and Methods of Public Finance. Objects of Public Expenditure. Revenue from Public Property and Fees. (Lectures.) [Prof. James. 2]

CIVIL GOVERNMENT.—Principles of General Constitutional and Administrative Law. Principles and Comparative Methods of Legislation. Lectures. [Prof. James. 2]

MERCANTILE LAW.—Parsons's *Laws of Business*. [Mr. Falkner. 2]

SECOND TERM.

INDUSTRIAL HISTORY OF THE UNITED STATES.—Compositions and Lectures. [Prof. Thompson. 2]

AMERICAN CONSTITUTIONAL HISTORY.—Second Period, 1825–1885. Diplomatic History. Biography of American Statesmen. (Lectures and Text-books.) [Prof. McMaster. 3]

FINANCE.—Principles and Methods of Public Finance. Theory and Practice of Taxation. Financial Administration. Local Finance. Lectures. [Prof. James. 2]

CIVIL GOVERNMENT.—Principles and Comparative Methods of Public Administration—general and local. Lectures. [Prof. James. 2]

POLITICAL ECONOMY.—Ingram's *History of Political Economy*. [Prof. Patten. 3]

MERCANTILE PRACTICE.—Lectures. [Mr. Falkner. 2]

STATISTICS.—General Theory. Statistics of Population. (Lectures.) [Mr. Falkner. 2]

CONSTITUTIONAL LAW.—(*Optional.*)*

ROMAN LAW.—(*Optional.*)*

*These courses are given in the Law School, but are open to Wharton School students.

METHODS OF WORK.

The plan of instruction embraces recitations, lectures and seminaries. The endeavor is made to train the students to think independently on the topics that form the subjects of instruction. An earnest effort is made to exclude all dogmatism in political or economic teaching, to present fairly all aspects of disputed questions, and to put the students in a position to form their own opinions on intelligent grounds.

The advanced students receive special attention and assistance in the seminaries, which are organized to promote correct habits of work and to foster a spirit of original investigation.

In order to quicken interest in political and economical sub-

Digitized by Google

jects, and to encourage acquaintance with parliamentary procedure, a Congress has been formed in the school. It is divided into Senate and House, and adopts the rules of procedure of the respective houses, following the course of Congressional debate and action, but confining itself to a few leading topics.

FELLOWSHIPS.

Five honorary Fellowships, which confer the privilege of attending any of the economic and historical courses of the University free of charge, are assigned at the beginning of each year. Graduates of any American college, or of foreign schools of similar grade, are eligible for appointment.

AUXILIARY FACILITIES.

All the courses in the other departments of the College, embracing those usually found in the graduate and undergraduate courses of our best Universities, are open to students of the Wharton School without extra charge for tuition, so far as this is consistent with their roster of studies in the School.

The following courses given in the Law School are of special interest to students in this department:

1. Roman Law.
2. Constitutional Law of the United States.
3. International Law.
4. History of the Common Law.

Besides the University Library, which has an unusually valuable collection of works on economics and statistics, the public libraries of the city, and many of the private ones also, aggregating several hundred thousand volumes, are open to the students in the pursuit of their university work.

PUBLICATIONS.

A series of occasional publications on Political Economy and Public Law and on History will be issued by the University, representing a portion of the work done in the seminaries by the professors and students. The following numbers have already appeared:—1. Wharton School Annals of Political Science. 2. The Anti-Rent Agitation in New York. 3. Ground Rents in

Digitized by Google

Philadelphia. The following are in preparation:—4. The Constitution of the German Empire. 5. Building Associations. The numbers of the series for 1888 and 1889 will be chiefly devoted to STUDIES IN FEDERAL GOVERNMENT.

LIBRARY.

The University possesses a large and valuable library of works relating to finance and political economy. The foundation was laid by the great collection of the late Stephen Colwell, comprising between seven and eight thousand volumes, and including nearly every important book on these subjects in the English, French, and Italian languages, published before 1860. This has been supplemented by the bequest of the library of the late Henry C. Carey, which includes many later works and pamphlets, and is especially rich in statistical literature, European government reports, and the like. It embraces a collection of about three thousand English pamphlets, formerly Mr. McCalmont's, covering the period from the close of the seventeenth century to our own time, and bound in chronological order.

Original research by the students, under the direction of the professors, is a part of the work of the School.

SPECIAL AND PARTIAL COURSES.

SPECIAL STUDENTS, not candidates for a degree, may be received into any of the Courses.

In the Course in Arts, they will be under the supervision of a standing committee of the Faculty, and may take special studies in any subject taught in the Course, provided they can satisfy the professor teaching the subject that they are competent to profit by his instruction. With their special subject they must take at least two other subjects. At the close of such a Special Course, a Certificate of Proficiency in the subject elected will be granted, signed by all the professors whose instruction the student has attended.

In the Towne School, special students may take any one of the Professional Courses, provided the professor in charge of that course is satisfied of their competency to profit by his instruc-

Digitized by Google

tion. They take all the studies that the professor thinks necessary to complete the course, together with such others as the Faculty may require. At the end of the course, upon passing the examinations, and presenting a satisfactory thesis, they receive a Certificate of Proficiency. Application should be made to the professor in charge of the course which the student wishes to take, and definite arrangements may be made with him —subject, however, to the approval of the Faculty.

In the Wharton School, special students, properly qualified, are admitted to the work in any subject or subjects taught in the School. They should apply to Prof. John Bach McMaster, A.M., Secretary of the Faculty of Finance and Economy.

PARTIAL COURSES, also, may be taken, consisting of such groups of studies (not constituting special courses) as the Faculty may sanction; but admission to a partial course is to be considered an exceptional arrangement, and may be withdrawn when deemed expedient. A Certificate, stating what studies have been pursued, will be awarded to those who complete such a course satisfactorily.

DEGREES.

The Degree of *Bachelor of Arts* (*A.B.*) is given on graduation (1) to students in Arts who have completed the full Course, (2) to students in the Wharton School or the Course in Philosophy for Undergraduates who have passed their first two years in the Course in Arts.

The Degree of *Master of Arts* (*A.M.*) is conferred on Bachelors of Arts of the University, of not less than three years' standing, who have pursued liberal studies since their graduation, and who present a satisfactory Thesis to the Faculty. This Thesis must be sent to the Dean by the first Friday in April.

After 1892 this degree will not be conferred by the College Faculty, but by the Faculty of Philosophy, and only on examination after at least one year of graduate study.

The Degree of *Bachelor of Science* (*B.S.*) is given (1) to students in the Towne Scientific School at the end of Senior year; (2) to students in Finance and Economy or in Philosophy who have passed their first two years in the Course in Science; (3) to students who take Junior and Senior year in the Course in Arts

Digitized by Google

after having completed the first two years in the Course in Science.

The Technical Degree of *Practical Chemist* (*P.C.*), *Mining Engineer* (*E.M.*), *Civil Engineer* (*C.E.*), *Mechanical Engineer* (*M.E.*), or *Architect* (*Archt.*) is given to Bachelors of Science in the Towne School at the end of Post-Senior year. Alumni of the Towne School who hold a Bachelor's Degree may receive the Technical Degree corresponding to their Special Course, on completing satisfactorily at any time the studies of Post-Senior year.

The Degree of *Bachelor of Philosophy* (*Ph.B.*) is given on graduation (1) to students who have pursued the full Course of the Wharton School; (2) to those who have taken the full Course in Philosophy for Undergraduates.

FEES.

The Tuition Fee in the College Department is one hundred and fifty dollars a year, except that for the last three years in the Towne Scientific School, and for the last two years in the course in Philosophy, it is two hundred dollars a year, and for the course in Music thirty dollars a year. In addition, a fee of five dollars is charged by the Department of Physical Culture. A deposit of twenty dollars is required in the Chemical Laboratory to cover breakage. Any balance is returned.

The Annual Tuition Fees are payable to the Treasurer of the University in two instalments, on October 1st and February 1st.

A Graduation Fee of twenty dollars is charged to each candidate for the Baccalaureate Degree, and of ten dollars to each candidate for the Master's Degree. Certificates for Special or Partial Courses, ten dollars.

COLLEGE GUARDIANSHIP.

Students not residing at their own homes are assigned each to some member of the Faculty for personal care and oversight. Other students are so assigned by classes or sections, the member of the Faculty in this case being known as the Class (or Section) Officer.

Digitized by Google

SCHOLARSHIPS.

I. THE PENN SCHOLARSHIPS, two in number, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege reserved by Thomas Penn, Proprietary of Pennsylvania.

II. Certain Free Scholarships (about five in each class) are granted to deserving and needy students in this Department, under the following regulations:

Each candidate must present to the Dean of the Faculty, at or before the entrance examinations in June or September, written testimonials as to his deserts and needs. After passing his examinations satisfactorily, he will be recommended for admission to the Committee of the Board of Trustees. The scholarships are granted for one year only.

III. THE PUBLIC SCHOOL PRIZE SCHOLARSHIPS. — Under a contract with the City of Philadelphia, Fifty Free Scholarships have been permanently established in the College Department of the University for the benefit of pupils from the Public Schools of the city. The candidates for these scholarships are examined by the Board of Public Education, and the scholarships, according to the number of vacancies, are bestowed upon those who reach the highest grade in their examination, provided that grade be at least sixty-five per cent.

Of these, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, and the SAMUEL V. MERRICK SCHOLARSHIP have been endowed.

IV. The income of the BLOOMFIELD MOORE FUND is intended to enable women (not exceeding six in any year) who are teaching, or who propose to teach, to receive free instruction in all departments to which women are admitted.

EXAMINATIONS

are held at the end of each term. Students who attain a certain standing are classed as "Distinguished;" those whose term-averages show them to be deficient in any of their studies are conditionally attached to their class, until the deficiency has been fully made up. For persistent neglect of study, great

Digitized by Google

irregularity of attendance, or inability to keep up with the class, students are dropped from the rolls.

PRIZES.

The following prizes are offered annually to students in this Department.

All essays in competition for prizes must be handed to the Professor in charge or to the Dean, not later than May 1st, must be signed with a fictitious name, and be accompanied by a sealed envelope, on which is written the fictitious name, and in which is enclosed the writer's real name and address. No prize will be awarded unless the work done for it reaches a high standard of excellence.

I. THE FACULTY PRIZES:

1. A prize of twenty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. Subject: *Spinoza.*

2. A prize of twenty dollars for the best examination on the *Oration of Demosthenes against Ctesiphon* by a member of the Junior Class.

3. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents.

4. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the Voluntary Junior Class.

5. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Share of Pennsylvania in the Measures that led to the War for Independence.*

6. A prize of twenty dollars for the best Essay by a member of the Junior Class. Subject: *The "Imaginary Conversations" of Walter Savage Landor.*

7. A prize of fifteen dollars for the best Declamation by a member of the Sophomore Class.

8. A first prize of fifteen dollars, and a second prize of ten dollars, for the best special examinations in the Elements of Latin Prose Composition by Freshmen on entering College. In 1889, the examination will be upon the first fifty-five exercises in *Arnold's Latin Prose Composition.* Certificates will be presented to *all* competitors whose examinations reach a satisfactory standard.

Digitized by Google

9. Two prizes of the same value as those offered for Latin Prose Composition, for the best special examinations in Greek Prose Composition by Freshmen on entering College. In 1889, the examination will be on *Jones' Greek Exercises*, or its equivalent. (A knowledge of Greek accentuation will be required.)

10. A prize of twenty dollars to a member of the Scientific Classes for improvement in Drawing, and for general good conduct and application.

II. THE HENRY REED PRIZE, founded by the Alumni of the University, for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a Diploma of Merit. (Essays in competition for this prize are handed to the Dean for transmission to a Committee of the Board of Trustees, by whom the prize is awarded.) Subject: *The Names of Persons and Places in Thackeray's Novels.*

III. THE SOCIETY OF THE ALUMNI PRIZES.

1. A prize for the best Latin Essay by a member of the Graduating Class. It entitles the successful competitor to one year's interest on nine hundred dollars. (The essays are handed to the Dean for transmission to a Committee of Examiners appointed by the Society.)

2. A prize for the best Original Declamation by a member of the Junior Class. It entitles the successful competitor to one year's interest on three hundred dollars.

IV. A prize, founded by HENRY LA BARRE JAYNE, of the class of 1879, for the best English Composition by a member of the Freshman Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *The Rise, Progress, and Decay of Slavery in the United States.*

V. THE JOSEPH WARNER YARDLEY PRIZE, founded by the class of 1887 in memory of their class-mate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars, and to an accompanying Diploma of Merit. Subject: *Trusts and the Remedy for Them.*

Digitized by Google

VI. A prize, founded by D. VAN NOSTRAND, Esq., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship. It consists of certain technical works.

VII. A prize, founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, Samuel Brown Wylie Mitchell, M.D., of the class of 1852, for the best work in English Composition, done during the year, by a member of the Sophomore Class. It entitles the winner to one year's interest on four hundred dollars.

PUBLIC LECTURES.

The following Courses of Lectures given in this Department are open to the public:—

On *Shakespeare*, by HORACE HOWARD FURNESS, PH.D., LL.D.:

1. The London of Shakespeare's Days,
2. The Study of Shakespeare,
3. The Humor of Shakespeare.

On *German Literature*, by Professor SEIDENSTICKER.

On *Middle and Early Modern English* (*Chaucer to Milton*), by Professor MCELROY.

On *Physics*, by Professor BARKER.

On *Organic and Applied Chemistry*, by Professor SADTLER.

On *Inorganic Chemistry*, by Professor SMITH.

On *Greek Literature*, by Professor LAMBERTON.

The instruction in Analytical Chemistry, including practical work in the laboratory, under Professors SADTLER and SMITH, is also open to the public.

The fee for each course of lectures is ten dollars; for the instruction in Analytical Chemistry, two hundred dollars a year.

Application for admission to these lectures or for further information respecting them may be made to the Dean.

SOCIETIES.

The PHILOMATHEAN (Literary) SOCIETY, founded in 1813, holds meetings weekly during the college year, at its rooms in the University. All undergraduates of the College Department are eligible to membership. The order of exercises includes orations, essays and a debate, besides the usual general

Digitized by Google

business, which affords excellent practice in the principles of parliamentary law. A large and valuable library is owned by the Society.

The SCIENTIFIC SOCIETY holds weekly meetings at its rooms in the University throughout the college year. All undergraduates of the University are eligible to membership. Scientific essays are read, and discussions are held, with a general comparison of observations and experiments. Besides a considerable scientific library, large collections of minerals, fossils, ornithological specimens, and other objects of scientific interest are owned by the Society. A course of lectures, under the management of the Society, is delivered annually.

ACADEMY OF NATURAL SCIENCES.

Through the courtesy of the Curators of the Academy of Natural Sciences (S. W. Corner of Nineteenth and Race Sts.), students of the University are admitted free of charge to its very extensive Museum on exhibition of their Matriculation Card. Permission to use the Museum for special study, or to consult the library of 30,000 volumes on Natural Science, can be obtained by application to the Curators.

For further information concerning this Department, address Prof. E. Otis Kendall, LL.D., Dean of the College Faculty; or, for special information concerning the Wharton School Course, to Prof. John Bach McMaster, A.M., Secretary of the Faculty of Finance and Economy.

THE COURSE IN MUSIC.

The qualifications required to enter the department are, *first*, a knowledge of the rudiments of music, and, *second*, the ability to play on some instrument—preferably the piano or organ.

The course extends through three years. The year begins on the first Monday in October, and is divided into three terms of ten weeks each. The first year is devoted to Harmony; the second to Counterpoint and Composition; the third to Form and Instrumentation.

Persons of both sexes are admitted. The fees are ten dollars ($10) for each term, payable in advance.

A Certificate of Study is awarded to the student who has com-

Digitized by Google

pleted the full course, passed the required examination, and presented as a thesis a satisfactory original composition. It is intended to hold hereafter a Commencement of the Department of Music for the granting of Degrees and awarding of Certificates, and from the theses of the graduating class a certain number will be selected by the Professor to be performed on that occasion. Persons holding these Certificates may at any subsequent time proceed to the Degree of Bachelor of Music (Mus. Bac.) on the following conditions:—

1. They must be examined in Harmony, Counterpoint and Composition, by three examiners appointed by the Professor, subject to the approval of the Provost; the examination to be oral or written, or both, at the discretion of the examiners.

2. They must submit to the examiners an original composition in the form of a cantata for solos and chorus, with an accompaniment of at least a quintette of string-instruments.

3. This composition must be of such length as to require at least twenty minutes for its performance; it must contain a four-part fugue; and the accompaniment must be independent, except in the fugue.

4. The composition must be accompanied by a written statement that it is the student's own unaided effort.

For detailed information, apply to

Prof. H. A. Clarke, Mus. D., 223 S. 38th Street.

STUDENTS.

THIRD YEAR.

Anna Jackson,
Benjamin Monteith,
Wm. Forrest Paul,
William Stobbe.

SECOND YEAR.

Ida E. Bowser,
Julia A. Plantholz,
Clara Schaubel,
James C. Warhurst,
Jane L. Zebley.

FIRST YEAR.

Ella Blair,
Irene Butland,
Gertrude B. Duffee,
Albert Egbert,
Mary A. Evans,
Anna J. Ferris,
H. H. Furness, Jr.,
Hermann Grebe,
C. Albert Hartmann,
Anna Hitzeroth,
Harry W. Kuni,
Alma Roach,
Emma Schubert,
Florence Schubert,
Emma M. Smith.

Total, 24.

Digitized by Google

DEPARTMENT OF MEDICINE.

WILLIAM PEPPER, M.D, LL.D., PROVOST, and *ex-officio* President.

HENRY H. SMITH, M.D., Emeritus Professor of Surgery.

ALFRED STILLÉ, M.D., LL.D., Emeritus Professor of the Theory and Practice of Medicine and of Clinical Medicine.

HARRISON ALLEN, M.D., Emeritus Professor of Physiology.

RICHARD A. F. PENROSE, Emeritus Professor of Obstetrics and of the Diseases of Women and Children.

FACULTY.

JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.

D. HAYES AGNEW, M.D., LL.D., JOHN RHEA BARTON Professor of Surgery, and Professor of Clinical Surgery.

WILLIAM PEPPER, M.D., LL.D., Professor of Theory and Practice of Medicine and of Clinical Medicine.

WILLIAM GOODELL, M.D., Professor of Gynæcology.

JAMES TYSON, M.D., Professor of General Pathology and Morbid Anatomy.

HORATIO C. WOOD, M.D., LL.D., Professor of Materia Medica, Pharmacy and General Therapeutics.

THEODORE G. WORMLEY, M.D., LL.D., Professor of Chemistry and Toxicology.

JOHN ASHHURST, JR., M.D., Professor of Clinical Surgery.

WILLIAM OSLER, M.D., Professor of Clinical Medicine.

EDWARD T. REICHERT, M.D., Professor of Physiology.

WILLIAM F. NORRIS, M.D., Honorary Professor of Ophthalmology.

BARTON COOKE HIRST, M.D., Associate Professor of Obstetrics.

HOWARD A. KELLY, M.D., Associate Professor of Obstetrics.

CLINICAL PROFESSORS.

WILLIAM F. NORRIS, M.D., Clinical Professor of Diseases of the Eye.

GEORGE STRAWBRIDGE, M.D., Clinical Professor of Diseases of the Ear.

HORATIO C. WOOD, M.D., LL.D., Clinical Professor of Nervous Diseases.

LOUIS A. DUHRING, M.D., Clinical Professor of Skin Diseases.

Digitized by Google

LOUIS STARR, M.D., Clinical Professor of Diseases of Children.

J. WILLIAM WHITE, M.D., Clinical Professor of Genito-Urinary Diseases.

ASSISTANT PROFESSOR.

EDWARD T. BRUEN, M.D., Assistant Professor of Physical Diagnosis.

AUXILIARY PROFESSORS.

JOHN J. REESE, M.D., Professor of Medical Jurisprudence, including Toxicology.

SAMUEL G. DIXON, M.D., Professor of Hygiene.

LECTURERS AND DEMONSTRATORS.

ROLAND G. CURTIN, M.D., Lecturer on Physical Diagnosis.

CHARLES K. MILLS, M.D., Lecturer on Mental Diseases.

ADOLPH W. MILLER, M.D., Lecturer on Materia Medica and Pharmacy and Instructor in Practical Pharmacy.

DE FOREST WILLARD, M.D., Lecturer on Orthopædic Surgery.

JOHN MARSHALL, M.D., NAT.SC.D., Demonstrator of Practical Chemistry.

J. WILLIAM WHITE, M.D., Demonstrator of Surgery.

GEORGE A. PIERSOL, M.D., Demonstrator of Normal Histology.

HENRY F. FORMAD, M.D., Demonstrator of Morbid Anatomy and Pathological Histology, Lecturer on Experimental Pathology, and Librarian of the Stillé Medical Library.

HENRY R. WHARTON, M.D., Instructor in Clinical Surgery, and Lecturer on Surgical Diseases of Children.

JOHN B. DEAVER, M.D., Demonstrator of Anatomy, and Lecturer on Topographical Anatomy.

RICHARD H. HARTE, M.D., Demonstrator of Osteology.

THOMAS R. NEILSON, M.D., } Assistant Demonstrators
EDMUND W. HOLMES, M.D., } of Anatomy.

ALBERT L. A. TOBOLDT, M.D., Assistant Instructor in Practical Pharmacy.

WILLIAM A. EDWARDS, M.D., } Instructors in Clinical Medicine.
JUDSON DALAND, M.D., }

J. P. CROZER GRIFFITH, M.D., Assistant to the Professor of Theory and Practice of Medicine.

SAMUEL D. RISLEY, M.D., Instructor in Ophthalmology.

W. M. L. ZIEGLER, M.D., Instructor in Otology.

CARL SEILER, M.D., Instructor in Laryngology.

FRANCIS X. DERCUM, M.D., Instructor in Nervous Diseases.

J. HENDRIE LLOYD, M.D., Instructor in Electro-Therapeutics.

A. SYDNEY ROBERTS, M.D., Instructor in Orthopædic Surgery.

HENRY W. STELWAGON, M.D., Instructor in Dermatology.

Digitized by Google

HOBART A. HARE, M.D., Demonstrator of Experimental Therapeutics, and Instructor in Physical Diagnosis.

THOMAS R. NEILSON, M.D., Instructor in Genito-Urinary Diseases.

WILLIAM L. TAYLOR, M.D., Instructor in Clinical Gynæcology.

GWILLYM G. DAVIS, M.D., Assistant Demonstrator of Surgery.

EDWARD MARTIN, M.D., Instructor in Operative Surgery, Assistant Demonstrator of Surgery, and Lecturer on Emergency Surgery.

JOHN K. MITCHELL, M.D., Instructor in Clinical Medicine.

W. FRANK HAEHNLEN, M.D., Lecturer on Clinical and Operative Obstetrics.

GEORGE H. CHAMBERS, M.D., Assistant Demonstrator of Normal Histology.

JAMES K. YOUNG, M.D., Assistant Demonstrator of Surgery.

DAVID D. RICHARDSON, M.D., Assistant Demonstrator of Anatomy.

JOHN H. MUSSER, M.D., Instructor in Clinical Medicine.

JOHN B. ROBERTS, M.D., Assistant Demonstrator of Anatomy.

HENRY W. CATTELL, M.D., Assistant Demonstrator of Chemistry.

ALLEN J. SMITH, M.D., Assistant Demonstrator of Morbid Anatomy and Pathological Histology.

ROBERT FORMAD, V.M.D., Assistant Demonstrator of Normal Histology.

ARTHUR A. STEVENS, M.D.,
T. PASSMORE BERENS, M.D.,
GUY HINSDALE, M.D., } Instructors in Physical Diagnosis.

ANDREW J. PLUMER, M.D., Assistant Demonstrator of Morbid Anatomy.

EDWARD TATUM, M.D., Demonstrator of Physiology.

BENJAMIN F. STAHL, M.D., Instructor in Physical Diagnosis.

GILBERT B. PFOUTS, M.D., Acting Assistant Demonstrator of Morbid Anatomy.

HARRY C. DEAVER, M.D.,
H. H. KYNETT, M.D., } Acting Assistant Demonstrators of Anatomy.

The following students, selected on account of their proficiency in Chemistry, act as Assistants in the Chemical Laboratory:

LEONARD WOOLSEY BACON, Yale College.
JOS. C. BLOODGOOD, University of Wisconsin.
W. E. BRUNER, Wesleyan University.
W. B. FENN, Hamilton College.
P. MAX FOSHAY, Geneva College.
ROBERT G. GRISSOM, University of North Carolina.
W. F. MCCONKEY, Missouri State University.
R. W. MEIRS, Princeton College.
L. M. POWELL, University of Kansas.
HOWARD C. RUSSELL, Columbian University.
A. H. SCOFIELD, Princeton College.

Digitized by Google

L. S. SMITH, University of Pennsylvania.
ROBERT L. TURNER, Mississippi Agricultural and Mechanical College.
G. S. WOODWARD, Yale College.

The following Graduates of the School conduct the admission examinations in the several cities in which they reside:

Dr. C. H. MASTIN, 110 St. Francis Street, Mobile, Ala.
Dr. Jos. M. TOWLER, 6 N. Main Street, Columbia, Tenn.
Dr. EUGENE A. GRISSOM, North Carolina Insane Asylum, Raleigh, N. C.
Dr. C. D. FISHBURN, 70 McMicken Avenue, Cincinnati, Ohio.
Dr. E. C. BULLARD, 185 Harrison Avenue, Boston, Mass.
Dr. C. GILMAN SMITH, 2220 Calumet Avenue, Chicago, Ill.
Dr. C. H. BOARDMAN, 503 Wabasha Street, St. Paul, Minn.
Dr. W. FITZ HUGH EDWARDS, 205 Fort Street, Detroit, Mich.
Dr. W. S. ELKIN, 70½ Whitehall Street, Atlanta, Ga.
Dr. J. W. WHITBECK, 125 East Avenue, Rochester, N. Y.
Dr. W. T. BELL, City and County Hospital, San Francisco, Cal.
Dr. W. D. HAMAKER, Meadville, Penna.
Dr. EDWARD RANDALL, JR., Galveston, Texas.
Dr. F. E. MAINE, Auburn, N. Y.
Dr. B. M. WALKER, Danville, Va.

HOSPITAL STAFF.

WILLIAM PEPPER, M.D., LL.D., Professor of Clinical Medicine.
D. HAYES AGNEW, M.D., LL.D., Professor of Clinical Surgery.
WILLIAM GOODELL, M.D., Professor of Clinical Gynæcology.
JAMES TYSON, M.D., Professor of General Pathology and Morbid Anatomy.
JOHN ASHHURST, JR., M.D., Professor of Clinical Surgery.
WILLIAM OSLER, M.D., Professor of Clinical Medicine.
WILLIAM F. NORRIS, M.D., Clinical Professor of Diseases of the Eye.
GEORGE STRAWBRIDGE, M.D., Clinical Professor of Diseases of the Ear.
HORATIO C. WOOD, M.D., LL.D., Clinical Professor of Nervous Diseases.
LOUIS A. DUHRING, M.D., Clinical Professor of Skin Diseases.
LOUIS STARR, M.D., Clinical Professor of Diseases of Children.
J. WILLIAM WHITE, M.D., Clinical Professor of Genito-Urinary Diseases.

ROLAND G. CURTIN, M.D.,
EDWARD T. BRUEN, M.D.,
J. P. CROZER GRIFFITH, M.D.,
JOHN K. MITCHELL, M.D.,
} Assistant Physicians.

J. WILLIAM WHITE, M.D.,
H. R. WHARTON, M.D.,
RICHARD H. HARTE, M.D.,
} Assistant Surgeons.

Digitized by Google

SAMUEL D. RISLEY, M.D., Assistant Ophthalmic Surgeon.
WALTER M. L. ZIEGLER, M.D., Assistant Aural Surgeon.
HENRY W. STELWAGON, M.D., Assistant Dermatologist.
FRANCIS X. DERCUM, M.D., Assistant Neurologist.
W. L. TAYLOR, M.D.,
W. CONSTANTINE GOODELL, M.D., } Assistant Gynæcologists.

ANNIE L. LOCKE, Superintendent of the Hospital.
HENRY F. FORMAD, M.D., Pathologist.
JUDSON DALAND, M.D., Curator.
DAVID B. BIRNEY, M.D., Surgical Anæsthetizer.
JOSEPH LEIDY, JR., M.D.,
ELLWOOD R. KIRBY, M.D.,
ALFRED C. WOOD, M.D.,
CHARLES McK. HAY, M.D.,
DANIEL M. EASTER, M.D., } Resident Physicians.
C. B. KIRBY, Ph.G., Apothecary.

DISPENSARY SERVICE.

SAMUEL D. RISLEY, M.D., Surgeon in the Dispensary for Diseases of the Eye.

WALTER M. L. ZIEGLER, M.D., Surgeon in the Dispensary for Diseases of the Ear.

WILLIAM L. TAYLOR, M.D., Surgeon in the Dispensary for Diseases of Women.

DE FOREST WILLARD, M.D.,
A. SYDNEY ROBERTS, M.D., } Attending Surgeons in the Orthopædic Dispensary.

JOHN H. MUSSER, M.D., Physician in the Medical Dispensary.

CARL SEILER, M.D., Physician in the Dispensary for Diseases of the Throat.

FRANCIS X. DERCUM, M.D., Physician in the Dispensary for Nervous Diseases.

H. W. STELWAGON, M.D., Physician in the Dispensary for Diseases of the Skin.

M. HOWARD FUSSELL, M.D., Assistant Physician in the Medical Dispensary.

RICHARD H. HARTE, M.D.,
CHARLES W. DULLES, M.D.,
JOSEPH M. FOX, M.D.,
JOHN B. DEAVER, M.D., } Attending Surgeons in the Surgical Dispensary.

JAMES WALLACE, M.D.,
G. E. DE SCHWEINITZ, M.D., } Assistant Surgeons in the Dispensary for Diseases of the Eye.

JAMES HENDRIE LLOYD, M.D., Assistant Physician in the Dispensary for Nervous Diseases.

Digitized by Google

THOMAS R. NEILSON, M.D., Surgeon in the Dispensary for Genito-Urinary Diseases.

JOHN SHEETS, M.D., Assistant Physician in the Dispensary for Diseases of the Throat.

HOBART A. HARE, M.D., Physician in the Dispensary for Diseases of Children.

FREDERIC H. MILLIKEN, M.D.,
JAMES K. YOUNG, M.D., } Assistant Surgeons in the Orthopædic Dispensary.

WILLIAM R. HOCH, M.D., Assistant Surgeon in the Dispensary for Diseases of the Ear.

J. HOWARD REEVES, M.D., Assistant Physician in the Dispensary for Diseases of the Throat.

EDWIN C. BAILEY, M.D.,
W. CONSTANTINE GOODELL, M.D.,
W. A. CAREY, M.D., } Assistant Surgeons in the Dispensary for Diseases of Women.

H. M. CHRISTIAN, M.D., Assistant Surgeon in the Dispensary for Genito-Urinary Diseases.

B. ALEXANDER RANDALL, M.D.,
G. ORAM RING, M.D., } Assistant Surgeons in the Dispensary for Diseases of the Eye.

WILLIAM M. POWELL, M.D., Physician in the Dispensary for Diseases of Children.

WM. E. HUGHES, M.D.,
M. HOWARD FUSSELL, M.D.,
GEORGE DOCK, M.D., } Assistant Physicians in the Medical Dispensary.

ALLEN J. SMITH, M.D.,
WALTER CHRYSTIE, M.D., } Physicians in the Dispensary for Diseases of Children.

All communications should be addressed to

JAMES TYSON, M.D.,
Dean of the Faculty of Medicine, University of Penna.,
Philadelphia, Penna.

☞ The Dean's office is in Medical Hall, where all business is transacted.

MATRICULATES.

FOURTH YEAR.

Birney, Herman H., M.D.,	Washington, D. C.,	Columbian Univ'y.
Thomas, John W., M.D.,	New Orleans, La.	University of La.

Students of the Fourth Year, 2.

THIRD YEAR.

Adams, J. Howe,	Philadelphia,	D. Hayes Agnew.
Alrich, William M.,	Philadelphia,	Edward Martin.
Anderson, Willis S.,	Shelby, Ohio,	Bricker & Huss.

Digitized by Google

Applebach, Harry E.,	Sellersville,	N. Applebach.
Bacon, John,	Greenwich, N. J.,	H. C. Wood.
Baker, Nathan M., B.S. (Univ. Minn.),	St. Peter, Minn.,	Chas. N. Hewitt.
Banks, William H.,	Mifflintown,	L. Banks.
Bashore, Harvey B., A.B. (Yale),	West Fairview,	D. W. Bashore.
Benedict, Arthur L., A.B. (Univ. Mich.), M.D.,	Buffalo, N. Y.,	Univ'y of Buffalo.
Bermudez, Salvador,	Leon, Nicaragua,	Judson Daland.
Boger, John A., A.B. (C.H.S.),	Philadelphia,	D. Hayes Agnew.
Bolling, Robert H.,	Chestnut Hill,	Robt. Bolling.
Brooke, Benjamin,	FortressMonroe, Va.,	Allen J. Smith,
Brown, James G.,	Peola Mills, Va.,	O. R. Quaintance.
Bryan, J. Roberts, A.B. (C.H.S.),	Philadelphia,	University.
Burd, William J.,	Belvidere, N. J.,	J. Marshall Paul.
Burger, Francis J.,	Lancaster,	A. J. Burger.
Bushong, John W., A.B. (C.H.S.),	Philadelphia,	University.
Butcher, Alexander C.,	Philadelphia,	B. F. Butcher and H. F. Formad.
Butler, Clarence A., A.B. (W. U. P.),	Allegheny,	University.
Canby, Edmund,	Wilmington, Del.,	D. W. Maul.
Carpenter, Herbert B.,	Philadelphia,	University.
Carpenter, John T., Jr.,	Pottsville,	J. T. & J. S. Carpenter.
Cashman, Nathaniel A., Ph.G.,	Philadelphia,	Louis Starr.
Christie, Robert J., Jr., M.D.,	Quincy, Ill.,	Quincy Med. Coll.
Clarke, J. Frederick, B.S. (Iowa State Univ.),	Fairfield, Iowa,	W. A. Edwards.
Clark, Robert,	Philadelphia,	Alex. Elwell.
Cleveland, Arthur H., B.S. (Lafayette),	Philadelphia,	University.
Cressman, George S.,	Lafayette Hill,	B. R. Peltz.
Cross, George D.,	Chester,	R. H. Milner.
Crothers, S. Ross, Ph.G.,	Zion, Md.,	J. H. Beck.
Curry, Edw. A., A.B. (Dickinson),	Danville,	J. D. Strawbridge.
Davis, Charles N.,	Bryn Mawr,	University.
Davis, William J.,	Pottstown,	J. Davis & B. B. Wilson.
Deekens, A. Hamilton,	Philadelphia,	University.
Dieffenderfer, Walter B., M.E.,	Auburn,	J. T. & J. S. Carpenter.
Dimm, Charles H.,	Selins Grove,	P. A. Boyer.
Dongion, Giragos,	Dearbecker, Armenia,	Judson Daland.
Downes, Randolph H.,	Templesville, Md.,	University.
Dunn, Walter, Ph.G.,	Clifton Heights,	J. S. Pearson.
East, Frederick, A.M. (Rochester),	Brockport, N. Y.,	Rich. M. Moore.
England, Joseph W., Ph.G.,	Philadelphia,	E. P. Bernardy.
Ferguson, Albert D.,	Philadelphia,	J. F. Holt.
Finlay, Charles E., M.D.,	Havana, Cuba,	H. B. Sands.
Fowler, Charles C., A.B. (Emory Coll.),	Spartanburg, S. C.,	Robert Battey.

Digitized by Google

Fox, Horace,	Philadelphia,	J. P. Crozer Griffith.
Frasse, Irvin N.,	Brooklyn, N. Y.,	Geo. G. Hopkins.
French, Edward M.,	Bethlehem,	John B. Deaver.
Galbraith, James L., A.B. (C.H.S.),	Philadelphia,	A. G. Reed.
Gallagher, George W.,	Dawson,	Hobart A. Hare.
Gallaher, Thomas J., Jr.,	Pittsburgh,	Thos. J. Gallaher.
Galloway, Albert B., A.B. (C.H.S.),	Philadelphia,	University.
Geissenger, Henry G.,	Philadelphia,	R. W. Griffith.
Gerlach, E. Rudolph,	Trenton, N. J.,	University.
Gillespie, Frank,	Principio, Md.,	R. R. Crothers.
Grebe, William, Ph.G.,	Philadelphia,	J. A. McAuley.
Greene, William C., A.B.,	Beaufort, S. C.,	F. X. Dercum.
Hall, George B.,	Renovo,	Wm. E. Hall.
Hall, William D. W., A.B. (Princeton),	Lewes, Del.,	David Hall.
Hamme, John M., B.S. (Lafayette),	York,	Jacob Hay.
Harris, Thomas J., A.B. (Dartmouth),	Claremont, N. H.,	University.
Hekiniman, Gabriel, M.D.,	Erzeroom, Turkey,	University.
Heil, Ulysses S. Grant,	Easton,	M. T. Prendergast.
Hileman, John S.,	Pittston,	G. W. Underwood.
Horning, Frank L.,	Landingville,	D. Dechert.
Howerter, Emanuel L., B.E.,	Stony Run,	University.
Hull, Waldo W.,	Williamsport,	W. R. Hull.
Humphrey, Glennis E.,	Union City,	A. C. Sherwood & O. L. Abbey.
Hunsberger, J. Newton,	Skippack,	Sam'l Wolfe.
Johnston, William G.,	Titusville,	University.
Jones, Charles J.,	Philadelphia,	J. Wm. White.
Keefer, Frank R., Ph.B. (Dickinson),	Sprague, Wash. Ter.,	Calvin DeWitt.
Keiser, Elmer E., A.B. (Bucknell Univ.),	Lewisburg,	John B. Deaver.
Ketcham, Stephen R.,	Philadelphia,	John B. Deaver.
Kneass, Samuel S., A.B. (Univ. Penna.),	Philadelphia,	University.
Kulp, John Stewart,	Wilkesbarre,	J. A. Murphy.
La Motte, Harry,	Fort Wingate, N.M.,	University.
Leaman, William G.,	Philadelphia,	University.
Lear, John, A.M. (Lafayette),	Allentown,	John Sandt.
Lederman, Moses D.,	Lancaster,	M. L. Herr.
Leonard, Charles L., A.B. (University of Penna. & Harvard),	Philadelphia,	University.
Longshore, James B.,	Philadelphia,	G. D. O'Farrell.
McClure, John T.,	Philadelphia,	University.
McConnell, James W.,	Manayunk,	C. K. Mills.
McCormick, Louis P.,	Connellsville,	University.
McFarland, Joseph,	Philadelphia,	Geo. H. Horn.
McGalliard, Benjamin W., Ph.B. (Lafayette),	Bridgeton, N. J.,	University.

Digitized by Google

McGill, Will. B.,	Marionville, Mo.,	University.
McKelway, George I., Ph.G.,	Philadelphia,	D. Hayes Agnew.
McNaugher, Samuel N., A.B. (Westminster),	Allegheny,	University.
Manship, Sheridan P.,	Milton, Del.,	M.F.Corkran & J. S. Gillespie.
Massinger, Charles Jerome,	Chalfont,	University.
Mercer, Charles P., Ph.B. (University of Penna.),	Philadelphia,	S. T. Neuber.
Michel, Bernard, Ph.G.,	Dubuque, Iowa,	Jno. B. Deaver.
Miller, Charles L.,	Lebanon,	S. Weiss, Jr.
Miller, Horace W.,	Urbana, Ill., •	J. T. Miller.
Miller, Morris Booth,	Media,	Chas. J. Essig.
Milnor, William S., A.B. (C.H.S.)	Philadelphia,	University.
Moore, Cyrus Chester,	Moore's Salt Works, Ohio,	Wm. W. Jones.
Moore, J. Demuth, Ph.G.,	Wrightsville,	University.
Motter, Murray G., A.B., B.S. (Penna. Coll.),	Washington, D. C.,	J. B. Scott.
Naylor, Walter W.,	New Hope,	G. L. Romine.
Neuber, George G. E., A.B. (Univ. of Penna.),	Philadelphia,	S. T. Neuber.
Nicholson, George M.,	Jersey City, N. J.,	A. A. Latkins.
O'Brien, Christopher, Ph.G.,	Conshohocken,	University.
Paff, Edwin H.,	Allentown,	W. S. Berlin.
Patrick, William S.,	Quinton, N. J.,	T. J. Smith.
Phillips, Horace,	Philadelphia,	University.
Pickerell, Evan,	Minerva, Ky.,	J. A. Reed.
Posey, William C., A.B. (Univ. of Penna.),	Philadelphia,	University.
Price, William H., A.B. (C.H.S.),	Philadelphia,	R. J. Levis.
Rawlins, Benjamin L.,	Dallas, Texas,	S. D. Thruston.
Reigel, William A., A.B. (Penna. Coll.),	Catasauqua,	H. H. Reigel.
Reisert, William, Ph.G.,	Bridesburg,	University.
Rhodes, Oreon S.,	E. Stroudsburg,	T. C. Walton.
Roach, Walter W., A.B. (C.H.S.),	Philadelphia,	Horace Ladd.
Rodgers, Robert Jr.,	Philadelphia,	J. Howard Evans.
Roth, Emil,	Philadelphia,	John Strobel.
Rosenau, Milton J., A.B. (C.H.S.),	Philadelphia,	University.
Rote, John P., A.B. (K.S.U.),	San Antonio, Texas,	University.
Rothermel, Pius,	Molltown,	University.
Schaeffer, Charles D., A.B. (F. & M. Coll.),	Kutztown,	A. L. C. Hottenstein.
Schneider, Louis T.,	Philadelphia,	Geo. A. Bodamer.
Schroeder, Charles B., A.M. (Lafayette),	Lock Haven,	University.
Scott, Charles G.,	Roarkee, India,	University.
Scott, J. Allison, A.B. (Univ. of Penna.),	Philadelphia,	Geo. E. Shoemaker.

Digitized by Google

Sharp, J. Riddle,	Harrington, Del.,	Jno. A. Klump.
Silva, Manuel C. da,	Rio de Janeiro, Brazil,	University.
Sinnamon, George,	Philadelphia,	D. O'Callaghan.
Smith, A. Donaldson,	Philadelphia,	William Hunt.
Small, J. Frank,	York,	I. C. Gable.
Smith, Rolla L.,	Oakville,	I. Betz.
Snyder, Elmer R.,	Hilltown,	E. T. Johnson.
Speers, Albert C.,	Belle Vernon,	University.
Stengel, Alfred,	Pittsburgh,	Walter Stengel.
Stichter, Henry Deischer, Ph.G.,	East Greenville,	H. Bobb.
Stitt, Edward R., A.B. Ph.G.,	Rock Hill, S. C.,	T. M. DuBose.
Strain, Earle,	Flesherton, Can.,	Dr. Carter.
Striegel, Charles A.,	Shenandoah,	University.
Swaving, J. Harry,	Pottsville,	J. T. Carpenter and J. C. Swaving.
Swift, Elisha P., A.B. (Lafayette),	Allegheny,	University.
Taylor, Harry B.,	Philadelphia,	Wm. T. Taylor.
Thomas, George Pierce, M.D.,	Philadelphia,	Wm. Pratt Read.
Toulmin, Harry, Ph.B. (Lehigh),	Philadelphia,	University.
Trexler, Jacob F.,	Mertztown,	P. W. Wertz.
Tyson, T. Mellor,	Philadelphia,	James Tyson.
Tunis, Joseph P., A.B. (Univ. of Penna.),	Philadelphia,	Louis Starr.
Umsted, William M.,	Coatesville,	Wm. R. Blakeslee.
Van Buskirk, Frederic W.,	Pottstown,	Henry Beates, Jr.
Vanmeter, Seymour D.,	San Antonio, Texas,	Judson Daland.
Weiss, George L.,	Lebanon,	S. Weiss, Jr.
Weiszgerber, John, Ph.B. (University of Penna.),	Philadelphia,	University.
Whaly, Benton H.,	Whaleyville, Md.,	S. P. Dennis.
Wheeler, Harry S.,	Phœnixville,	J. V. Reeder.
White, Abraham E., A.B. (Lincoln University),	Clinton, Miss.,	N. F. Mossell.
Williams, Charles B., A.B. (Univ. of Penna.),	Philadelphia,	R. J. Levis.
Wilson, E. Ellsworth, Ph.G.,	Philadelphia,	Henry Beates, Jr.
Wilson, Henry Delano,	Washington, D. C.,	J. B. Deaver.
Wilson, Richard,	Philadelphia,	University.
Wilson, Samuel M., B.A. (C.H.S.),	Philadelphia,	Jas. F. Wilson.
Wolf, Charles N.,	Hellam,	J. A. Armstrong.
Woodland, George Y.,	Norristown,	J. Wm. White & E. M. Corson.

Students of the Third Year, 161.

SECOND YEAR.

Anders, Howard S., B.A. (C.H.S.),	Philadelphia,	Jas. M. Anders.
Anders, Wesley A.,	North Wales,	H. F. Slifer.
Anderson, Thomas B.,	Indianapolis, Ind.,	University.
Ashhurst, William W.,	Philadelphia,	John Ashhurst.

Digitized by Google

Backenstoe, Martin J.,	Emaus,	A. J. Martin.
Bacon, Leonard W., Jr.,	Philadelphia,	University.
Barker, Frederick D., Ph.B. (Dennison),	McConnellsville, O.,	R. Harvy Reed.
Bennett, James C., Jr.,	Cape May City, N.J.,	University.
Bowman, Henry C.,	Schuylkill Haven,	C. Lenker.
Bowser, Alexander J.,	Schellsburg,	F. M. Marbourg.
Boyer, Samuel H.,	Titusville,	Geo. W. Barr.
Brimhall, John B.,	St. Paul, Minn.,	University.
Bromley, John L.,	Philadelphia,	A. K. Minich.
Bryant, Ernest A.,	St. Paul, Minn.,	University.
Carothers, William M., A.B.,	Turtle Creek,	H. N. Mateer.
Carter, William S.,	Easton,	Isaac Ott.
Chidsey, Russell Williams,	Easton,	J. S. Hunt.
Clark, Henry H.,	Woodbury, N. J.,	H. C. Clark.
Clegg, William H., A.B. (C.H.S),	Philadelphia,	University.
Corbus, Howard L., B.A.,	Beaver Falls,	D. McKinny, Jr.
Culin, Walter, Ph.G.,	Philadelphia,	University.
Cummins, Robert H.,	Wheeling, W. Va.,	L. D. Wilson.
Dager, Howard, A.B. (C.H.S.),	Manayunk,	A. H. Mellesh.
Daly, Harry C.,	Gibsonton,	University.
Dickson, Thomas G.,	Troy, N. Y.,	J. B. Harvie.
Doan, Henry H.,	Philadelphia,	University.
Doherty, Anthony F.,	Hazleton,	W. R. Longshore.
Donahay, De Witt S.,	Turkey, N. J.,	Wm. M. Hepburn.
Eagleton, S. Potts,	Philadelphia,	Jas. M. Eagleton.
Evans, Frederick H.,	Chester,	F. J. Evans.
Evans, William K.,	Chester,	Wm. G. Knowles.
Evins, Thomas E.,	Spartansburg, S. C.,	D. B. Ray, Blake & Greene.
Farish, James C.,	Liverpool, N. Scotia,	H. G. Farish.
Frishmuth, John P., A.B. (C.H.S.),	Philadelphia,	University.
Gazzam, Edwin Van Deusen,	Carrollton, Md.,	University.
Geist, James W., M.E.,	Bechtelsville,	A. S. Erney.
Gilliland, A. Bertram, Ph.B. (Cornell),	Van Wert, Ohio.	University.
Graham, Wm. T., A.B. (Princeton),	Philadelphia,	University.
Green, Edward M., Jr., A.B., (Centre),	Danville, Ky.,	L. S. McMin.
Guest, Middleton Semmes,	Philadelphia,	C. J. Cleborne.
Gunning, Thomas F.,	Fall River, Mass.,	O. B. Jones.
Haines, E. Everitt,	Vincentown, N. J.,	J. C. Brown.
Haines, Rowland I.,	Norristown,	C. S. Dolly.
Hamann, Carl A.,	Davenport, Iowa,	A. W. Cantwell.
Handly, M. William, A.B.,	Hopedale, Ohio.	University.
Harland, William G. B.,	Germantown,	University.
Harris, Charles D.,	Philadelphia,	University.
Heard, James Delavau,	Pittsburgh,	S. N. Benham.
Hoch, Charles August,	Basel, Switzerland,	W. R. Hoch.

Digitized by Google

Holly, Clarke W., B.A. (Yale),	Philadelphia,	W. J. Holly.
Howell, William P.,	Wheeling, W. Va.,	University.
Hunter, R. Wallace,	Stormstown,	J. Y. Dale.
Johnston, Albert T. W.,	Nassau, W. I.,	T. W. Johnston.
Johnston, Frederick L., Ph.G.	Cape May City, N. J.,	James Mecray.
Kamerly, E. Forrest, Jr.,	Town Hill,	E. F. Kamerly.
Kaufman, Frederick S.,	Auburn,	J. W. Loch.
Kawamoto, Junzo, Ph.B. (Oberlin),	Kobe, Japan,	University.
Kennedy, Robert M.,	Pottsville,	J.T. & J.S.Carpenter.
Kerr, Edward,	Downingtown,	Thos. E. Parke.
Langhorne, Stepney T.,	Farmville, Va.,	University.
Lathrop, Walter,	Montrose,	University.
Leisher, Charles A.,	McAlisterville,	W. H. Hoops.
Lesher, George S.,	Richland,	J. D. Zimmerman.
Levis, Minford,	Philadelphia,	R. J. Levis.
Lewars, Horace S.,	Philadelphia,	F. X. Dercum.
Leys, James Farquharson,	Philadelphia,	University.
Lightfoot, Sidley Jevers,	Limerick, Ireland,	C. B. Gaffney.
Lincoln, Walter R., B.A. (Univ. of Penna.),	Philadelphia,	University.
Longaker, Daniel,	Norristown,	J. Wm. White.
McConkey, Thomas G.,	Springfield, Ohio,	University.
McFadden, Charles J.,	Lewistown,	J. T. Mahon.
Maison, Robert S., A.B. (Univ. of Penna.),	Philadelphia,	University.
Maloney, John B.,	Key West, Fla.,	Jno. B. & H. C. Deaver.
Martin, Charles S.,	Allentown,	E. G. Martin & John B. Deaver.
Marshall, Robert J.,	Camden, N. J.,	University.
Maglaughlin, W. Kieffer, A.B. (Dickinson),	Carlisle,	A. R. Allen.
Maury, John M.,	Memphis, Tenn.,	University.
Menah, William McClellan,	Philadelphia,	University.
Miller, Emmitt Palmer,	Stroudsburg,	University.
Milliken, George G., D.D.S.,	Philadelphia,	F. H. Milliken,
Mitcheson, Robert S. J., Ph.G.,	Philadelphia,	H. W. Cattell.
Morris, Daniel E.,	Millcove, P. E. I.,	Martin & McLean.
Muttart, George,	Souris, P. E. I.,	E. B. Muttart.
Myers, Frank F.,	Lewistown,	J. T. Mahon.
Neal, Chales B., Ph.G.,	Woodbury, N. J.,	University.
Niesley, Charles M., B.S. (Lafayette),	Mechanicsburg,	University.
Niblock, Charles A., A.B. (C.H.S),	Philadelphia,	University.
Nicholson, Joseph L.,	Camden, N. J.,	University.
O'Drain, Thomas I., A.B.,	Philadelphia,	University.
O'Hara, Michael, Jr.,	Philadelphia,	J. B. Deaner & M. O'Hara.
Pennepacker, Edward M.,	Scranton,	H. Pennepacker.
Potter, Edwin S.,	Philadelphia,	C. S. Dolley.
Powell, Milton, D.D.S.,	Philadelphia,	University.

Digitized by Google

Price, Lucius Grant,	Auburn, N. Y.,	F. E. Maine.
Reese, David L.,	Renovo,	D. J. Reese.
Rettew, David P.,	Brandywine Manor,	N. G. Thompson.
Reynolds, Frederick P.,	Elmira, N. Y.,	Henry Flood.
Rhein, John H.,	Philadelphia,	E. M. Watson,
Rhett, Henry J., Ph.B.,	Philadelphia,	H. M. Wetherill, Jr.
Richards, Oscar M., B.S. (Lafayette),	Easton,	D. W. Richards.
Rottner, Charles P.,	Philadelphia,	Dr. Geissel.
Ruffner, Samuel A.,	Ashley,	E. L. Diefenderfer.
Russell, William W., C.E. (Penn. Mil. Acad.),	Minneapolis, Minn.,	Thomas S. Roberts.
Samaniego, José A.,	Chihuahua, Mex.,	N. Samaniego.
Saxman, Nathaniel H., A.B. (Franklin and Marshall),	Latrobe,	University.
Schaadt, Clinton J., A.B. (Muhlenberg),	Coplay,	University.
Scott, J. Ernest,	Cross Creek,	T. C. M. Stockton.
Shaw, John W., Jr.,	Lewistown,	University.
Sherman, De Witt H., A.B. (Williams),	Buffalo, N. Y.,	Roswell Parks.
Smith, Arthur L., A.B. (Rochester),	Meridian, N. Y.,	Edw. B. Angell.
Smith, Franklin A., Jr.,	Philadelphia,	University.
Snyder, Harvey L.,	Old Zionsville,	University.
Spelman, James F.,	Fulda, Minn.,	L. L. Rewalt.
Steinicken, George A., Ph.G.,	Wilmington, Del.,	University.
Steinwandel, John A.,	Lancaster,	University.
Strayer, Edgar,	Patterson,	S. A. Suloff.
Strickler, Charles Miller,	Lebanon,	Geo. P. Lineaweaver.
Summers, Arthur P., Ph.B. (Yale),	Col. Springs, Col.,	University.
Sunderland, Henry, Ph.G., A.M. (C.H.S.),	Philadelphia,	E. L. B. Godfrey.
Torrance, Harry S.,	Cairo, Ill.,	John B. Deaver.
Tyson, Thomas P.,	Jenkintown,	Wm. C. Parry.
Updegrove, Jacob D., A.M.	Easton,	Traill Green & E. M. Green.
Vanneman, Walter A. R., (Lafayette),	Philadelphia,	University.
Van Wart, George Clowes,	Fredericton, N. B.,	G. H. Coburn.
Wagner, Edward C. O., B.A. (Canisuis Coll.),	Wilkes-Barre,	Univ. of Leipzig.
Wagner, William F., Ph.G.,	Hazleton,	M. L. Mench.
Walker, William K.,	Phœnixville,	W. R. Batt.
Walmer, Ephraim L.,	Harrisburg,	E. H. James.
Webster, I. Daniel,	Wakefield,	Edw. Martin.
Weems, Marcus A.,	Columbia, Texas,	M. L. Weems.
Weida, Isidore J.,	Shamrock,	J. F. Wertz.
Welty, Cullen F.,	Canton, Ohio.	A. C. Brant.
Wethered, John L.,	Chestertown, Md.,	University.
Yeager, Norton R.,	Allentown,	W. H. Hartzell.

Students of the Second Year, 134.

FIRST YEAR.

Amadeo, Jesus Maria,	Maimabo, Puerto Rico,	A. J. Amadeo.
Baugh, A. Wayne,	Chester Valley,	James Aiken.
Baxter, Hart B., A.B. (C.H.S.),	Philadelphia,	H. F. Baxter.
Bennett, Francis W.,	Philadelphia,	W. H. Bennett.
Beyea, Harry D.,	Scranton,	W. W. Ives.
Biemesderfer, Frank I., B.E.,	Manheim,	C. J. Snavely.
Billstirn, Aaron M.,	Philadelphia,	Louis Jurist.
Bloodgood, Joseph C., B.S. (Univ. of Wis.),	Milwaukee, Wis.,	University.
Blouse, John A.,	York,	J. S. Miller.
Boyer, Henry P.,	Lafayette Hill,	University.
Brown, Barton,	Williamsport,	T. C. Detwiler.
Bruner, William E., A.B. (Wesleyan),	Columbia,	University.
Buck, Aug. W., A.B. (Williams),	Fall River, Mass.,	F. J. Buck.
Burk, Charles M.,	Philadelphia,	University.
Cahill, Thomas H., A.B. (Holy Cross),	Fall River, Mass.,	University.
Camier, Henry W., A.B. (Wesleyan),	Middletown, Conn.,	University.
Carothers, Frank H.,	San Antonio, Texas,	University.
Chance, Burton K.,	Philadelphia,	University.
Chew, Elisha C.,	May's Landing, N.J.,	University.
Clark, John G.,	Economy, Ind.,	J. B. & J. M. Clark.
Clark, Robert M.,	Middletown, Conn.,	R. P. M. Ames.
Claytor, Thomas A.,	Obligation, Md.,	D. Murray Cheston.
Cresson, Hilborne T.,	Philadelphia,	University.
Cuadra, José Maria, Ph.B.,	Granada, Nicaragua,	University.
Cushing, William F., Jr.,	Philadelphia,	Wm. Pratt Read.
Devlin, T. Francis, A.B. (La Salle),	Philadelphia,	J. D. Schoales.
Dewey, Julian H., Ph.B. (Univ. of Penna.),	Philadelphia,	University.
Dodd, Harry H.,	Lewes, Del.,	University.
Doerr, John E.,	Evansville, Ind.,	Geo. M. Young.
Donges, Clarence B.,	Camden, N. J.,	J. W. Donges.
Dubbs, John H.,	Allentown,	H. H. Herbst.
Dunott, Daniel Z.,	Harrisburg,	T. J. Dunott.
Earnest, Simon F.,	Annville,	E. B. Marshall.
Ellershaw, Albert,	Philadelphia,	Wm. Ellershaw.
Ellett, Edward C.,	Memphis, Tenn.,	University.
Etzler, William C.,	Wheeling, W. Va.,	W. J. Bates, Sr.
Fetterolf, George, A.B. (Univ. of Penna.),	Philadelphia,	Roland G. Curtin.
Fenn, William B., A.B. (Hamilton),	Pittston,	University.
Finch, Albert Ames,	Hastings, Minn.,	J. E. Finch.
Foshay, P. Max, B.S. (Geneva),	Beaver Falls,	W. H. Grim.
Furness, William H., 3d, A.B. (Harvard),	Philadelphia,	University.

Digitized by Google

Gano, Sidney Johnston,	Dallas, Texas,	University.
Gardiner, Warner,	Auburn, N. Y.,	F. E. Haines.
Gillette, Edwin J., A.B.,	Waterbury, Conn.,	University.
Grissom, Robert Gilliam, B.S. (Univ. of N. C.),	Raleigh, N. C.,	E. Burke Haywood.
Guilford, Paul,	Lebanon,	W. M. Guilford.
Hand, Leslie L.,	Cape May C.H., N.J.,	University.
Harnish, Charles A.,	Alexandria,	T. Harnish.
Hertz, J. Lincoln, M.E.,	Lexington,	J. K. Hertz.
Hiller, Hiram M., Jr.,	Kahoka, Mo.,	University.
Hinkle, W. Marshall, B.S. (Univ. of Penna.),	Philadelphia,	A. G. B. Hinkle.
Hoyt, Mark D.,	St. Paul, Minn.,	Murphy & Hoyt.
Jarden, Albert B.,	Philadelphia,	University.
Johnson, Newell L.,	Milton,	J. McCauley.
Karib, Reul B.,	Oroomia, Persia,	University.
Kearney, Patrick W.,	Archbald,	University.
Kelchner, William I.,	Fleetwood,	University.
Kelly, Aloysius O. J., A.B. (La Salle),	Manayunk,	Jno. B. Deaver & Jos. V. Kelly.
Kline, William, Jr.,	Phillipsburg, N. J.,	J. M. Reese.
Laros, William A.,	Allentown,	M. H. Koch.
Lieber, Francis,	Washington, D. C.,	J. H. Musser.
Lippincott, Fred. B.,	Pemberton, N. J.,	University.
Lofland, James P.,	Milford, Del.,	G. W. Marshall.
Luhn, Henry B.,	Fort Spokane, W.T.,	University.
Lynd, Ernest,	Philadelphia,	R. Lynd.
McCleery, Edward H.,	Milton,	J. P. McCleery,
McConkey, Wilbur F. B.,	Evona, Mo.,	Univ. of Mo.
McDonald, Thomas P.,	Gold Hill, Nev.,	Cooper Med. Coll.
McGehin, Edward,	Hazleton,	Wm. C. Gayley.
McIlwaine, John A., A.B. (C.H.S.), Ph.B. (Univ. Pa.),	Philadelphia,	University.
McKinstry, James F., Jr.,	Gainesville, Fla.,	University.
Mailly, Hamilton,	Bridgeton, N. J.,	Theo. G. Davis.
Malone, Charles A.,	Lancaster,	D. McCormick.
Masland, Harvey C., A.B. (C.H.S.),	Philadelphia,	University.
Marcy, Frederick W.,	Cape May City, N. J.,	V. M. D. Marcy.
Martyn, Charles S., B.S. (Dickinson),	Hazleton,	W. R. Longshore.
Marvin, Sydney R.,	Amherst, Mass.,	University.
Matlack, Lewis H.,	Philadelphia,	University.
Meirs, R. Waln, A.B. (Princeton),	Hornerstown, N. J.,	University.
Metzler, Gottfried,	Philadelphia,	J. C. Hutzill.
Miller, Frederick M.,	Philadelphia,	University.
Moon, W. Willet,	Fallsington,	University.
Morton, Howard M., B.S. (Lafayette),	Kennett Square,	R. B. Ewing.
Nassau, Charles F.,	Philadelphia,	Jno. B. Deaver.
O'Brien, William J.,	Sugar Notch,	University.
Ogden, David W., A.M.,	Newark, N. J.,	N. F. Mossell.
O'Hara, Patrick H.,	Shenandoah,	D. J. Langton.

Digitized by Google

Pearce, Frank Savary,	Steubenville, Ohio,	E. Pearce.
Pickle, J. Harry, M.E.,	Millersville,	University.
Poëy, Edward C.,	Habana, Cuba,	University.
Pontius, Paul J., A.B. (Bucknell),	Lewisburg,	University.
Pool, Stewart N.,	McDonough, Del.,	James Tyson.
Potts, Barton H.,	Pottstown,	J. Elmer Porter.
Powell, Lewis M., B.A. (Univ. of Kansas),	Topeka, Kansas,	D. W. Stormont & Reid Alexander.
Reigraf, John M.,	Philadelphia,	S. T. Neuber.
Reynolds, George B.,	Scranton,	M. J. Williams.
Richards, Isaac Starr,	Philadelphia,	Louis Starr.
Robinson, John M.,	Corning, N. Y.,	H. A. Argue & J. D. Hook.
Rodgers, Mark A.,	Brookville,	A. F. Balmer.
Ross, Charles C.,	Clarion,	J. Frank Ross.
Ross, George G.,	Philadelphia,	Jno. B. Deaver.
Sailer, Joseph, Ph.B. (Univ. of Pa.),	Philadelphia,	Chas. A. Oliver.
Scofield, Alfred H., A.B. (Princeton),	Budd's Lake, N. J.,	J. H. Wikoff.
Scott, John T.,	Galveston, Texas,	University.
Seiple, J. Howard,	Centre Square,	S. C. Seiple.
Shoemaker, William T., A.B. (C.H.S.),	Philadelphia,	Jno. B. Deaver.
Shuman, J. Elmer,	Mainville,	J. J. Brown.
Simon, Charles E., A.B. (Johns Hopkins),	Baltimore, Md.,	University.
Slocum, William H., Jr.,	Oceanport, N. J.,	Thomas G. Chattle.
Smith, Lawrence S., A.B. (Univ. of Penna.),	Philadelphia,	University.
Somers, Lewis S.,	Philadelphia,	O. B. Gross.
Starr, Harold F.,	Philadelphia,	Thos. G. Morton.
Steans, Ralph, A.B. (Lafayette),	Mifflinburg,	J. C. Steans.
Stevens, Albert S.,	Shelby, Iowa,	University.
Stivers, Charles G.,	Philadelphia,	University.
Strong, Benjamin,	Aberdeen, Miss.,	University.
Tally, Leonard K.,	Philadelphia,	A. Nebeker.
Thomas, Oscar F.,	Ashley,	University.
Trau, Philip A. E.,	Philadelphia,	Adam Trau.
Turner, Robert L., B.S.,	Paulding, Miss.,	C. W. Bufkin.
Tuttle, George H., A.B. (Harvard),	Acton Centre, Mass.,	University.
Van Dyke, Charles W., A.B. (Princeton),	Cranbury, N. J.,	University.
Van Loon, Will E.,	Easton,	University.
Vastine, George H.,	Catawissa,	J. H. Vastine.
Venning, Richard E.,	Charleston, S. C.,	G. M. Guiteras.
Wales, Wesley R.,	Cape May, N. J.,	E. B. Wales.
Warrick, William H.,	Philadelphia,	J. Wm. White.
White, Calvin S.,	Coleraine,	I. C. Gable.
Whiting, Albert D.,	Pottsville,	Jno. B. Deaver.
Willis, Park W., B.S. (Whitman),	Walla Walla, W. T.,	University.
Willson, Frederick G.,	Reading,	W. F. Muhlenberg.

Digitized by Google

Witmer, Frank B.,	Annville,	S. Weiss, Jr.
Woodward, George S., A.B. (Yale),	Wilkes-Barre,	University.
Woodward, William M., A.B. (Bucknell),	Coatesville,	G. R. Spratt.
Work, Robert A.,	Kirkwood,	J. W. Zell.
Wright, Theodore, Jr.,	Philadelphia,	M. T. Prendergast.
Zell, J. Harry,	Little Britain,	B. F. Sides.
Zulick, Thomas C.,	Easton,	J. M. Reese.
Zweighaft, Bernard,	Philadelphia,	Hobart A. Hare.

Students of the First Year, 139.

SPECIAL STUDENTS.

Atwood, Thomas W. W.,	Barrington, N. S.,	University.
Burnett, John R.,	Lafayette Hill,	University.
Cotton, Alfred H., F.R.G.S. (Eng.),	Bermuda, W. I.,	E. Wilkinson.
Dudley, James W., A.B. (Harvard),	Warsaw, N. Y.,	University.
Farquhar, Thomas H.,	Torresdale,	University.
Mierly, William M.,	Huntingdon,	University.
Reeve, Thomas,	Philadelphia,	W. H. Warder.
Keefer, Charles D., Ph.G.,	Chambersburg,	Lane & Palmer.
Wells, Frank H.,	Philadelphia,	University.

TOTAL.

Students of the Fourth Year	2
Students of the Third Year	161
Students of the Second Year	134
Students of the First Year	139
Special Students	9
	445

The total number of new matriculates the present session, including those admitted to advanced standing, is 163.

SUMMARY.

Armenia,	1	Louisiana	1	Pennsylvania	292
Brazil	1	Maryland	8	Persia	1
Canada	1	Massachusetts	4	Prince Edward Island	2
Colorado	1	Mexico	1	Puerto Rico	1
Connecticut	3	Minnesota	7	South Carolina	5
Cuba	2	Mississippi	3	Switzerland	1
Delaware	8	Missouri	3	Tennessee	2
District Columbia	4	Nevada	1	Texas	7
Florida	2	New Brunswick	1	Turkey	1
Illinois	3	New Hampshire	1	Virginia	3
India	1	New Jersey	27	WashingtonTerr.	3
Indiana	3	New Mexico	1	West Indies	2
Iowa	4	New York	11	West Virginia	3
Ireland	1	Nicaragua	2	Wisconsin	1
Japan	1	North Carolina	1		
Kansas	1	Nova Scotia	2		
Kentucky	2	Ohio	8	Total	445

Digitized by Google

ORGANIZATION OF THE MEDICAL SCHOOL.

This venerable Institution, the oldest of its class in the United States, was founded in 1765 by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. Through Dr. Morgan, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of Cullen, Dr. WM. SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica, and in June, 1768, a "Commencement was held" at which medical honors were bestowed, the first in point of time in America. In 1769, DR. BENJAMIN RUSH was elected Professor of Chemistry, and Dr. THOS. BOND of Clinical Medicine.

To the faculty thus composed of MORGAN, SHIPPEN, KUHN, RUSH and BOND have succeeded, at various times, professors whose reputation has been national, such as BARTON, WISTAR, CHAPMAM, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. RODGERS, CARSON, the elder PEPPER, FRANCIS GURNEY SMITH and NEILL.

The number of its graduates is ten thousand and one hundred and twenty-one.

ADMISSION.

Candidates for admission are required: *First*, to write an *Essay* (not exceeding in length a page of foolscap), as a test of Orthography and Grammar; *second*, to pass an examination in *Elementary Physics* (Part I. of Fowne's *Chemistry*). A candidate who has received a collegiate degree, or passed the matriculate examination of a recognized college, or who has a certificate covering the *required* subjects from a recognized normal or high school, or a duly organized county medical society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania—may enter without examination.

Digitized by Google

Examinations for admission are held Monday, May 6th, and Friday, September 27th, but arrangements may be made for examination at other times throughout the year, except July and August, upon application to the Dean.*

The attention of those looking toward the study of Medicine is particularly called to the unusual advantages of the Course in Philosophy in the College Department of the University. Students who have pursued satisfactorily the last two years of that course will be exempted from the preliminary examination.

Students who have attended one course in a Medical School (not Homœopathic or Eclectic) are admitted to the Second Year of the University course, upon passing a satisfactory examination in *General Chemistry*, *Materia Medica* and *Pharmacy*, and the elements of *General Pathology*. Students who have attended two courses in a regular Medical School are admitted to the third year, upon passing satisfactorily an examination in *General* and *Medical Chemistry*, *Materia Medica* and *Pharmacy*, *Anatomy Physiology* and the elements of *General Pathology*.

Graduates of regular medical schools in good standing are admitted to the *third* or *fourth* year without an examination. The diplomas of graduates from other schools are not endorsed by the Faculty of this school for registration, except after an examination of their holders, similar in all respects to that required of its own graduates. The fee for such examination is thirty dollars.

Graduates of Colleges of Pharmacy and Dental Colleges in good standing are admitted to the *second* year upon passing the entrance examination only.

Examinations for admission to advanced standing for Session 1889–90 will be held Thursday, September 26th, at noon.†

* Examinations for admission will also be held annually during the last week in June in Boston, Mass., Rochester, N. Y., Meadville, Pa., Raleigh, N. C., Columbia, Tenn., Atlanta, Ga., Mobile, Ala., Cincinnati, O., Chicago, Ill., Detroit, Mich., St. Louis, Mo., St. Paul, Minn., San Francisco, Cal., Galveston, Tex., Auburn, N. Y., Danville, Va. The names of the examiners will be found on page 74.

† Students from other colleges admitted to the second year who have not had instruction in Practical Histology are expected to make up such deficiency by taking a special course, as the second year's work presupposes a knowledge of the technique of the microscope. Students admitted to the third year must make up deficiencies in Pathological Histology as well.

Digitized by Google

COURSE OF STUDY.

The course of study earnestly recommended to students extends over four years, but the course is also arranged for three years, at the end of which the degree may be conferred. For the Fourth Year, almost wholly practical in character, a certificate is granted in addition to the diploma, to those who pass a satisfactory examination in the studies of that year.

The FIRST YEAR is largely occupied with work in the various laboratories of Chemistry, Pharmacy, Osteology, Histology and in Dissection. The first-year student may also attend clinical lectures in general medicine and general surgery. In the SECOND YEAR, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Pathological Histology and Physical Diagnosis. Dissection is continued. Throughout the SECOND and THIRD years the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals, and the clinics in special departments at the former. Special *bedside* instruction in Clinical Medicine, including Physical Diagnosis and Laryngology, in Surgery, and in Gynæcology, is given in the third year, as are also opportunities for the practical study of diseases of the eye, ear, throat, and skin, and for acquiring proficiency with the various instruments employed. For this purpose, the third-year class is divided into sections, each of which receives direct personal instruction.

The course of instruction is so arranged as to permit mainly constant introduction of new material, while retaining the repetition of essential subjects aimed at by the old methods. The laboratory instruction is so co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

Advanced students are encouraged to make original researches in the laboratories of pharmacy, chemistry, physiology, pathology and experimental therapeutics.

The result of the adoption of the prolonged and graded course on the composition of the classes and on their proficiency has been most gratifying. A proportion of students, much larger than ever before, have had a good education, either in colleges

Digitized by Google

or in academies, and their deportment has been characterized by increased earnestness and zeal. The annual examinations have steadily advanced in grade, while those for graduation have shown a degree of merit, and the graduation Theses an amount of scientific attainment and literary culture, higher than has heretofore been found.

Students of the University may attend, without additional charge, the lectures and recitations in all other departments, provided that the consent of the Dean of the department has first been obtained.

OUTLINE OF THE COURSE.

FIRST YEAR.	Total hours per week.
Anatomy—3 lectures per week, 10 hours practical anatomy (alternating with practical histology)	13
Topographical Anatomy—2 lectures per week	2
Histology—1 lecture per week, 2½ hours laboratory instruction.	3½
Materia Medica and Pharmacy—1 lecture per week, 2 hours laboratory	3
General Chemistry, including Chemical Physics—2 lectures per week, 4 hours laboratory	6
Physiology—3 lectures per week	3
General Pathology—1 lecture per week until March 1st	1
Hygiene—1 lecture per week	1
General Clinics, Medical and Surgical	4
Bandaging—1 hour lecture, 1 hour practice	2

Final examinations at the end of the Course: General Chemistry, Osteology, Histology, Materia Medica and Pharmacy, and Elements of General Pathology.

SECOND YEAR.	
Anatomy—3 lectures per week, 10 hours evening dissection	13
Topographical Anatomy—2 lectures per week	2
Medical Chemistry—1 lecture per week, 4 hours laboratory	5
Physiology—3 lectures per week	3
General Pathology and Morbid Anatomy—2 lectures per week, 1½ hours laboratory	3½
Physical Diagnosis—1 lecture per week, 1 hour demonstration.	2
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Obstetrics—2 lectures per week	2
General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics	8
Special Clinics (Nervous Diseases, Diseases of Skin, Eye, Ear, Gynæcology	5

Digitized by Google

Final examinations at the end of the Course: **Anatomy**, including Topographical Anatomy, Medical **Chemistry** and Physiology.

THIRD YEAR.

General Pathology and Morbid Anatomy—2 lectures per week	2
Demonstrations in Morbid Anatomy, including autopsies — 2 hours per week	2
Therapeutics—2 lectures per week	2
Theory and Practice of Medicine—3 lectures per week	3
Surgery—3 lectures per week	3
Operative Surgery and Minor Surgery—1 lecture per week, 2 hours' practice	3½
Obstetrics*—3 lectures per week	3
Operative Obstetrics—1 hour practice for half the term	½
Gynæcology†—1 lecture per week, 1 hour bedside teaching	2
Bedside Instruction in Practical Medicine†	1
Bedside instruction in Practical Surgery†	1
Dermatology—1 lecture per week until January 1st	½
Ophthalmology—1 lecture per week	1
Otology—1 lecture per week until January 1st	1
General Clinics, Medical and Surgical, including Philadelphia Hospital Clinics	8
Special Clinics (Nervous Diseases, Diseases of the Skin, Eye, Ear, Paediatrics, Gynæcology at both University and Philadelphia Hospitals), Genito-Urinary Diseases	8½
Medical Jurisprudence and Toxicology	1

Final examinations at the end of the Course: General and Special Pathological Anatomy, Therapeutics, Theory and Practice of Medicine, Clinical Medicine, Surgery, Gynæcology and Obstetrics. The examinations embrace one or more questions on Diseases of the Skin, the Eye and the Ear from lists furnished by the Clinical Professors of these branches.

FOURTH YEAR.

Clinical Medicine and Physical Diagnosis, including Laryngology, 2 hours clinical lecture, ½ hour practical instruction	4½
Clinical Surgery—2 hours clinical lecture, 1 hour practical instruction	3
Operative Surgery—1 hour practical instruction for half the term	½
Nervous Diseases and Electro-Therapeutics—1 hour clinical lecture, 1½ hours practical instruction	2½
Mental Diseases—1 hour lecture	1
Gynæcology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction	3

*Students also receive individual practical instruction in pelvimetry and abdominal palpation in addition to the lectures on Obstetrics.

†For these courses the class is divided into sections, so that each student receives direct personal instruction.

Digitized by Google

Paediatrics—1 hour clinical lecture for half the session	½
Dermatology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction	2½
Ophthalmology—1 hour didactic lecture, 1 hour clinical lecture, 1 hour practical instruction	3
Otology—1 hour didactic lecture for half the session, 1 hour clinical lecture, 1 hour practical instruction for half the session	2½
Clinical and Operative Obstetrics—1 hour practical instruction for half the session	½
Orthopædic Surgery—1 hour didactic lecture for half the session, 1 hour practical instruction for half the session	1
Genito-Urinary Diseases—1 hour clinical lecture, 1 hour practical instruction, each for half the term	1
Medical Jurisprudence and Toxicology—1 hour lecture	1

To all students who pursue a four years' course, and who pass a satisfactory examination in the studies of the fourth year, will be awarded a certificate in addition to the diploma. The Degree of Doctor of Medicine will also be conferred on graduates of other medical schools in good standing who take the third year of the three years' curriculum, or who attend the fourth year, and who pass a satisfactory examination in Morbid Anatomy, Therapeutics, Practice of Medicine, Clinical Medicine, Surgery, Gynæcology and Obstetrics.

TEXT-BOOKS.

FIRST YEAR.

TEXT-BOOKS.	COLLATERAL READING.
Chemistry: Fownes's Chemistry; Muter's Analytical Chemistry.	Wurts's Elements of Modern Chemistry; Richter's Chemistry.
Materia Medica: H. C. Wood. Mann on Prescription Writing.	Wood & Bache's Dispensary.
Anatomy: Leidy; Shäffer's Practical Histology.	Gray; Quain; Allen; Stricker's Histology.
Physiology: Yeo.	Foster.
General Pathology: Rindfleisch's Elements of Pathology, translated by Mercur: Tyson's Cell Doctrine, pp. 127–152.	

SECOND AND THIRD YEARS.

Medical Chemistry: Greene; Tyson's Practical Examination of Urine; Marshall & Smith's Analysis of Urine.	Wormley's Micro-Chemistry of Poisons; 2d edition.

Digitized by Google

Anatomy: Leidy.	Gray; Quain; Allen; Stricker.
Physiology: Foster.	
General Pathology and Morbid Anatomy: Rindfleisch's Elements; Coats's Manual of Pathology.	Payne, Pathology and Morbid Anatomy; Orth's Diagnosis in Pathological Anatomy.
Therapeutics: H. C. Wood.	Wood and Bache's Dispensatory.
Practice of Medicine: Flint or Roberts; Bruen's Physical Diagnosis.	Pepper's System of Practical Medicine; Stille's & Maisch's Dispensatory; Duhring on Diseases of the Skin; Tyson on Bright's Disease and Diabetes; Seiler, Diseases of Throat and Nose.
Surgery: Agnew; Ashhurst.	Ashhurst's International Encyclopedia of Surgery; Erichsen; Billroth's Surgical Pathology.
Obstetrics: Lusk's Midwifery.	Hirst's System of Obstetrics; Barnes's Obstetrics; Meigs and Pepper on Children; Starr on Children.
Gynæcology: Goodell's Lessons in Gynæcology.	Thomas on Diseases of Women; Emmett's Gynæcology.
Medical Jurisprudence and Toxicology: Reese.	Reese's Manual of Toxicology; Taylor's Medical Jurisprudence, by Reese.

The cost of the necessary text-books is within $50, distributed over the three years.

Digitized by Google

ORDER OF LECTURES DAILY.—FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.	Chemical Laboratory, two hours.		Dissection.	Dissection or Phila. or Penna. Hospital, Medi- and Surgical Clinics, 10 to 12.
10 A.M.	Hygiene.	Chemical Laboratory, two hours.		Topographical Anatomy.		
11 A.M.	Topographical Anatomy.				Materia Medica.	
12 M.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Practical Normal Histology, one section two hours. Others Dissect or attend Med. and Surg. Clinics, U. H.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Practical Normal Histology, one section two hours. Others Osteology or Dissection.	Dissection or Medical and Surgical Clinics. U. H.
1 P.M.						
3½ P.M.		Anatomy.	General Path. until March 1st.	Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Histology.	Physiology.	Bandaging, Lecture.	Physiology.	
7½ P.M.	Pharmacy, Laboratory. Half the class.	Bandaging. One-third the class.	Pharmacy, Laboratory. Half the class.	Bandaging. One-third the class.	Bandaging. One-third the class.	

U. H. University Hospital.

For the study of Histology, Osteology and Syndesmology, the class is divided into sections, one of which is occupied at a time. Students not thus engaged dissect, or if not otherwise occupied may attend general Clinics.—See SPECIAL ROSTER.

Digitized by Google

ORDER OF LECTURES, DAILY.—SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8½ A.M.						Medical Chemistry, Laboratory two hours.
9 A.M.			Phila. Hospital, Gynæcol. Clinic.	Medical Chemistry.	Medical Chemistry Laboratory, two hours.	
10 A.M.	Physical Diagnosis, Practice by Sections.	Physical Diagnosis, Lecture.	Phila. or Penna. Hospital, Medical and Surgical Clinics.	Topographical Anatomy.		Phila. or Penna. Hospital, Medical and Surgical Clinics.
11 A.M.	Topographical Anatomy.	Physical Diagnosis, Practice by Sections.		Medical Clinic.	Obstetrics.	
12 M.	Practice.	Surgery.	Practical Pathol. Histology, one section two hours. Others attend Gynæcological and General Surgical Clinic, U. H.	Surgery.	Surgery.	Practical Pathol. Histology, one section two hours. Others attend General Medical and Surgical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Practical Pathol. Histology, one section one hour. Others attend Clinic, Skin Diseases, U. H.		Practical Pathol. Histology, one section one hour. Others attend Clinic, Diseases of Eye, U. H.	Practical Pathol. Histology. one section one hour. Others attend Clinic, Nervous Diseases, U. H.	
3½ P.M.	Morbid Anatomy.	Anatomy.	Obstetrics.	Anatomy.	Anatomy.	Morbid Anatomy.
4½ P.M.	Physiology.		Physiology.	Therapeutics.	Physiology.	Therapeutics.
5½ P.M.		Practice.		Practice.		
7½ to 10 P.M.	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	

U. H. University Hospital.

For the Study of Pathological Histology and Physical Diagnosis, the class is divided into sections, one of which is occupied at a time; those of the Second Year Students not thus engaged attend Clinics.

Digitized by Google

ORDER OF LECTURES, DAILY.—THIRD YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.	Clinic, Diseases of Children, U. H., until Jan. 1st.	Demonstrations in Morbid Anatomy, two sections.	Phila. or Penna. Hospital, Medical and Surgical Clinics.	Autopsies, 9 o'clock.	Medical Jurisprudence.	Phila. or Penna. Hospital, Medical and Surgical Clinics.
11 A.M.	Obstetrics.	Demonstrations in Morbid Anatomy, two sections.		Medical Clinic.	Obstetrics.	
12 M.	Practice.	Surgery.	Gynæcological Clinic, U. H.	Surgery.	Surgery.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H. Ward Classes, U. H.	Clinic, Diseases of the Skin, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H. Ward Classes, U. H.	Clinic, Nervous Diseases, U. H. Ward Classes, U. H.	Surgical Clinic, U. H.
3½ P.M.	Morbid Anatomy.		Obstetrics.	Didactic Gynæcology, U. H.	Didactic Dermatology, until Jan. 1st. Clinic, Gen. Ur. Diseases, U. H. after Jan. 1st.	Morbid Anatomy.
4½ P.M.	Operative Surgery and Fracture Dressing, Lecture.	Didactic Ophthalmology, U. H.	Didactic Otology until Jan. 1st U. H. Orthopædic Surgery, after Jan. 1st.	Therapeutics.	Practical Surgery, two sections, two hours.	Therapeutics.
5½ P.M.	Practical Surgery, two sections. Operat. Obstetrics, sections, after Jan. 1st.	Practice.		Practice.	Operat. Obstetrics, sections, after Jan. 1st.	

U. H. University Hospital.

For WARD CLASS instruction the Third Year class is divided into sections. See SPECIAL ROSTER. Students of the Third Year are practically instructed in sections in BACTERIOLOGY, Fridays, at 9 o'clock, by DR. FORMAD.

Digitized by Google

ORDER OF LECTURES, DAILY.—FOURTH YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A.M.	Clinic, Diseases of Children, U. H., until Jan. 1st.		Phila. or Penna. Hospital, Medical, Surgical and Gynæcological Clinics.	Autopsies. 9 o'clock.	Medical Jurisprudence.	Phila. or Penna. Hospital, Medical, Surgical and Gynæcological Clinics.
11 A.M.				Medical Clinic.		
12 M.		Practical Gynæcology.	Gynæcological Clinic, U. H.	Practical Instruction, Orthopædics, until Jan. 1st, U. H. Practical Laryngology, after Jan. 1st, U. H.	Clinical Surgery, U. H.	Medical Clinic, U. H.
1 P.M.	Clinic, Diseases of the Ear, U. H.	Clinic, Diseases of the Skin, U.H.	Surgical Clinic, U. H.	Clinic, Diseases of the Eye, U. H.	Clinic on Nervous Diseases, U. H.	Surgical Clinic, U. H.
2 P.M.			Practical Ophthalmology, U. H.	Practical Dermatology, U. H.		
3½ P.M.	Mental Diseases.	Practical Instruction, Nervous Diseases, U. H.	Electro-Therapeutics, until Jan. 1st, U. H. Practical Instruction, Otology, after Jan. 1st, U. H.	Didactic Gynæcology, U. H.	Didactic Dermatology, until Jan. 1st. Clinic, Gen. Ur. Diseases, U. H., after Jan. 1st.	
4½ P.M.	Operat. Obstetrics, until Jan. 1st.	Didactic Ophthalmology, U. H.	Didactic Otology, until Jan. 1st, U. H. Orthopædic Surgery, after Jan. 1st.		Gen.-Ur. Diseases, until Jan. 1st. Operat. Surgery, after Jan. 1st.	
				Clinical Medicine. Ward Class.		Clinical Medicine. Ward Class.

U. H. University Hospital.

Digitized by Google

ROSTER OF BEDSIDE INSTRUCTION AND SPECIAL CLINICS FOR STUDENTS OF THE THIRD YEAR. SESSION 1888–1889.

For attendance upon these Courses, the Third Year Class is divided into four sections, A, B, C, and D, which attend as follows:—

First Period, from Monday, Oct. 2d, to Friday, Nov. 16th, inclusive.

	Monday.	Tuesday.	Thursday.	Friday.
Prof. Goodell	D	—	A	B
" Ashhurst	A	B	C	—
" Osler	B	D	—	A
Special Clinics	C	A & C	B & D	C & D

Second Period, from Monday, Nov. 19th, to Friday, Jan. 11th, inclusive.

Prof. Goodell	A	—	B	C
" Ashhurst	B	C	D	—
" Osler	C	B	—	D
Special Clinics	D	A & D	A & C	A & B

Third Period, from Monday, Jan. 14th, to Friday, March 1st, inclusive.

Prof. Goodell	B	—	C	D
" Ashhurst	C	D	A	—
" Osler	D	A	—	C
Special Clinics	A	B & C	B & D	A & B

Fourth Period, from Monday, March 4th, to Friday, April 12th, incl.

Prof. Goodell	C	—	D	A
" Ashhurst	D	A	B	—
" Osler	A	C	—	B
Special Clinics	B	B & D	A & C	C & D

The instruction is given at the University Hospital at 1 o'clock. Professor Osler will meet the sections of the Third Class in the Front Ward, Gibson Wing; Prof. Goodell in the Lower Lecture Room; and Prof. Ashhurst in the Front Ward, first floor. The Special Clinics are held in the Upper Lecture Room.

This arrangement enables each section to attend, during an equal portion of the term, the clinical lectures on special subjects, as follows:—

1 P. M.

Monday.	*Tuesday.*	*Thursday.*	*Friday.*
Prof. STRAWBRIDGE.	Dr. STELWAGON.	Prof. NORRIS.	Prof. WOOD.
Otology.	*Dermatology.*	*Ophthalmology.*	*Nerv. Dis.*

Digitized by Google

The entire Third Year Class will attend the General Medical, Surgical, and Gynæcological Clinics, held on Wednesday and Saturday, from 12 to 2 o'clock, in the Upper Lecture Room; also Medical Clinic on Thursday, at 11 o'clock, and the Demonstrations in Morbid Anatomy, by Prof. Tyson and Dr. Formad, at 10 and 11 o'clock on Tuesday.

SPECIAL ROSTER OF LABORATORY INSTRUCTION IN HISTOLOGY, OSTEOLOGY AND SYNDESMOLOGY, FOR STUDENTS OF THE FIRST YEAR. SESSION 1888–1889.

For instruction in these Laboratories, the First Year Class is divided into four sections, A, B, C, and D, which attend as follows:—

1st Period. *From Tuesday, Oct. 2d, to Friday, Nov. 16th, inclusive.*

12 O'CLOCK.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Histology,	A	A	A	A	A	—
Osteology,	B	—	WHOLE CLASS.	—	C & D	—

2d Period. *From Monday, Nov. 19th, to Friday, Jan. 11th, inclusive.*

12 O'CLOCK.

Histology,	B	B	B	B	B	—
Osteology,	A	—	WHOLE CLASS.	—	C & D	—

3d Period. *From Monday, March 14th, to Friday, March 1st, inc.*

12 O'CLOCK.

Histology,	C	C	C	C	C	—
Osteology,	D	—	WHOLE CLASS.	—	A & B	—

4th Period. *From Monday, March 4th, to Friday, April 12th, inc.*

12 O'CLOCK.

Histology,	D	D	D	D	D	—
Osteology,	C	—	WHOLE CLASS.	—	A & B	—

All students not occupied during the above hours, dissect from 12 to 2 daily, and from 9 to 11 Friday.

Digitized by Google

GRADUATION.

At the close of the third year, a student who has passed all examinations satisfactorily receives the Degree of Doctor of Medicine on the following conditions:

I. He must be 21 years of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of the curriculum, must have attended the practical instruction in all departments, and his last course of instruction must have been at this School. (A Thesis is no longer required, but students are recommended to prepare Theses in competition for the various Prizes.)

III. After notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

IV. He must be present at Commencement, unless excused by the Faculty.

ADDITIONAL INSTRUCTION.

In addition to the required Course and to the voluntary fourth year, Clinics, both general and special, and Lectures, both Theoretical and Practical, are continued after Commencement until the middle of June. All subjects connected with the fundamental departments of medicine, or with its several subdivisions, as determined by usage, are thoroughly taught in one or other of these courses; and it is strongly urged upon all students, especially those of the second and third years, to continue their studies during the spring and summer, and, by all means, to pursue the studies of the fourth year.

ARRANGEMENT OF SESSIONS.

The Academic Year is divided into two Sessions: 1st, the WINTER SESSION, on which alone attendance is required, and which is preceded by an INTRODUCTORY COURSE of two weeks, and 2d, the SPRING SESSION.

The SPRING SESSION, 1889, begins Monday, May 6th, and continues until Commencement Day, in June.

The INTRODUCTORY COURSE for the Session of 1889–90 begins Wednesday, September 18th.

Digitized by Google

The WINTER SESSION, 1889–90, begins on Tuesday, October 1st, and ends at Commencement, on Thursday, May 1st, 1890.

☞ *Students are earnestly requested to be in attendance at the beginning of the Session, as later entrance is attended with great disadvantage.*

EXPENSES.

WINTER TERM.

First Year.

Matriculation Fee $5 00
For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection $150 00
Dissecting material . . . . . $1 a part.

Second Year.

For general ticket, admitting to all the lectures and laboratory work assigned to this year, including dissection $150 00
Dissecting material . . . . . $1 a part.

Third Year.

For general ticket, admitting to all the lectures and practical work assigned to this year, including operating and bandaging (no graduation fee) $150 00
For the full third year course to graduates of other schools cluding privilege of applying for graduation (no graduation fee) 150 00
Material for operating . . . . . $1 a part.

Fourth Year. (*Voluntary.*)

For general ticket, including all the practical courses of this year (no graduation fee) $150 00
To graduates of other schools, with the privilege of attending the didactic courses of the third year, and applying for graduation (no graduation fee) 200 00

☞ The Tuition fee of $150 each year is *on condition that it is paid before November 1st.* If a division of payments is desired the fee will be $160 for the year. Eighty dollars to be paid before November 1st, and $80 before February 1st.

SPRING SESSION.

Matriculation fee (paid once only) $5 00
Tuition fee 30 00

This sum will be credited on account of the fee for the ensuing Winter Term.

Digitized by Google

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not graduates of the School, are required to pay the matriculation fee, in addition to the fees named below.*)

For the full third Course, including bandaging and operating, to graduates of this school	$75 00
For a single Course of Lectures, except Materia Medica	20 00
For Course on Materia Medica and on Bandaging and Operating, each	10 00
For Practical Course in the Chemical Laboratory	25 00
For the Course in Practical Gynæcology of the third year	25 00
For any one of the remaining Practical Courses	15 00

Graduates of the School are admitted to the LECTURES free of charge; but they are required to pay the fees for the practical courses.

At the beginning of the first year, each student is required to make a deposit of $5 with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned. At least twenty-five dollars must be paid on account of tuition before the student can be admitted to the chemical laboratory.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations named below.

Board can be obtained in Philadelphia for $4 per week and upwards.

SCHOLARSHIPS.

A competitive examination of candidates to fill four free scholarships is held annually. (In 1889, on Wednesday, September 25th, at 12 o'clock, noon.) Each candidate will be required—

First. To furnish satisfactory evidence that he is without means to defray the expenses of a medical education.

Second. To write a brief autobiography, not exceeding a page of foolscap, which will serve as a test of his qualifications in orthography and grammar.

Third. To pass a written examination in Latin prose translation on the first three books of Cæsar, and a written examination in Physics, which may embrace questions relating to the

Digitized by Google

general properties of Matter, Mechanics, Heat, Light, and Electricity. The examination is not confined to the subject matter of any text-book, but Balfour Stewart's Physics covers the ground as nearly as any.

Fourth. To pay an examination fee of $5, which is not returned, but is transferred to the matriculation fee in case the candidate is successful.

Candidates who propose to present themselves for examination will send their names, accompanied by the necessary certificate required by the first condition, to the Dean of the Faculty of Medicine, *before September 15th*, and appear without further notice.

FACILITIES FOR INSTRUCTION.

The instruction in the Medical Department is conducted in the MEDICAL HALL, the LABORATORY BUILDING, and the HOSPITAL OF THE UNIVERSITY.

The Medical Hall contains the Wistar and Horner Museum, the Histological, Osteological, Physiological, Pathological, and Pharmaceutical Laboratories.

THE STILLÉ MEDICAL LIBRARY, at its foundation in 1879, the judicious selection and generous gift of PROF. ALFRED STILLÉ, has received numerous additions, and now contains over six thousand volumes and as many pamphlets. It will be appropriately placed in the NEW LIBRARY BUILDING now being erected.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, has been annually augmented, and is unequalled in the United States for the number and variety of its specimens illustrating the normal and morbid anatomy of every part of the human body. It also contains a large number of preparations in comparative anatomy, and an extensive collection of models, used in illustrating the lectures. The Museum is open on Wednesdays and Saturdays, from 9 A.M. to 12 M., throughout the session, to matriculated students.

THE CABINET OF MORBID ANATOMY, collected by Dr. George B. Wood, and given by him to the University, contains an extensive series of wet preparations, drawings, and models in wax

Digitized by Google

and other materials, a collection unrivalled in extent and value, for illustrating diseases of the internal organs and of the skin.

The late distinguished Professor of Obstetrics, Dr. Hugh L. Hodge, enriched the facilities of Instruction in that special branch by the gift of his valuable Cabinet.

Through a like liberality of Dr. Henry H. Smith, Emeritus Professor of Surgery, and of the late Professor of Clinical Surgery, Dr. John Neill, the University has a further extensive and valuable gift of morbid specimens, models and drawings.

THE HISTOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy, and the direct guidance of the Demonstrators of Histology. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the first course student to become practically familiar with the most approved methods of microscopical technology, as well as with the Normal Histology of all the tissues and organs. During the spring months it is open for those who desire a course embracing those refinements and minutiæ, which of necessity are omitted in the regular winter's work. Especial facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

THE OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. The first year student is required, in this Laboratory, to make himself familiar with the skeleton and the articulations, as a part of his instruction in practical anatomy. To this end separate bones are loaned the student, which he is permitted to take home for study.

THE PHYSIOLOGICAL LABORATORY is under the personal direction of the Professor of Physiology, who devotes his entire time to the subject, aided by the Demonstrator. It is furnished with every form of apparatus likely to be used by the practical physiologist. Every facility is afforded advanced students and graduates pursuing special studies and who desire to pursue in Physiology. The Laboratory is open throughout the year, except during July and August.

THE PATHOLOGICAL LABORATORY, under the direction of the Professor of General Pathology and Morbid Anatomy, and the

Digitized by Google

Demonstrator, was opened in 1874, and attracts, from remote sections of the country, a large number of physicians and students who desire special preparation in Microscopic Technology, Normal and Pathological Histology, Bacteriology and Experimental Pathology. It is furnished with microscopes and all appliances requisite for practical study and for original research. This Laboratory is supplied with a complete outfit for the investigation of Bacteria in their relation to infectious diseases, and for the study of the lower fungi.

Each student of the second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in Pathological Histology, in Mycology, and in the Microscopy of Urine.

Each student of the third year receives advanced practical instruction in Morbid Anatomy, and in the making of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, along with the microscopic sections, are features of this course.

The practical work, during the regular winter session, is obligatory on students of both the second and the third year.

Special instruction and guidance in original research are given by the demonstrators to advanced students.

The Laboratory is open throughout the year, except during July and August.

THE PHARMACEUTICAL LABORATORY is in charge of the Professor of Materia Medica and Pharmacy and the Demonstrators of Pharmacy. It is furnished with tables and all necessary apparatus. In it the student learns not only the various pharmaceutical processes, but also that familiarity with drugs which can be acquired only by handling them.

THE LABORATORY OF EXPERIMENTAL THERAPEUTICS, under the direction of the Professor of Materia Medica and Therapeutics, is furnished with all apparatus and instruments necessary for the study of the physiological action of medicines.

THE DEPARTMENT OF PRACTICAL OBSTETRICS is under the care of the Professor of Obstetrics and the Demonstrator. It includes operations on the cadaver and with the manikin, while lying-in cases are given to advanced students.

Digitized by Google

THE LABORATORY BUILDING.

The first floor is arranged for the Operating Room or Infirmary of the Dental Department, and has the necessary waiting-rooms, etc., carefully adapted to the requirements of this department. The entrance is on Spruce Street.

The second and third floors are fitted up as chemical laboratories; on the second is the laboratory of General Chemistry, and on the third that of Medical Chemistry. In addition to the main room, on each story, there are four balance rooms, provided with instruments for attaining accuracy in Chemical research.

The fourth floor is occupied by the Dissecting Room.

CHEMICAL LABORATORIES.—The Working Laboratories for Practical Chemistry are under the supervision of the Professor of Chemistry and the Demonstrator, with assistants. Students of the First Year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his tests.

Students of the Second Year devote four hours per week to practical work in the Laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and complex mixtures.

DISSECTING ROOM.—In constructing the new Dissecting Room of the University, care was taken to provide everything that experience suggested as being necessary or desirable. The room is at the top of the Laboratory Building, and is one hundred and forty feet in length by forty feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. The tables have stone tops, which cannot absorb moisture and can be kept perfectly clean. There are numerous washstands and private closets for the use of each

Digitized by Google

student. Cleanliness is rigidly enforced. The preservation of the cadaver has been so successfully accomplished as almost to do away with the dangers of dissecting wounds. Dissection is legalized in Pennsylvania.

The Room is open throughout the year, except in July and August, under the superintendence of the Professor of Anatomy and the Demonstrators.

PRACTICAL SURGERY.—The application of bandages and dressings is taught to students in their First Year, while surgical operations on the cadaver are a part of the practical instruction to students of the Third Year, under the supervision of the Professor and Demonstrators of Surgery. Instruments and splints are supplied without expense to the student.

THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

The University Hospital, constructed according to the best established principles of hospital architecture, is provided with all the appliances pertaining to such institutions of the best class. It is adjacent to the new Medical Hall, and forms an integral portion of the Medical Department. In its various departments, during 1887, there were treated 8832 cases, representing almost all of the known medical, surgical and gynæcological affections. Owing to its situation within a very short distance of numerous railroads, the Hospital is pre-eminently the refuge of cases of severe injury and of acute surgery. Attendance on the Clinical Instruction given in its amphitheatres and its wards is a part of the daily duty of the students, and ample opportunities are afforded to the more advanced among them to gain a personal and practical acquaintance with Clinical Medicine, Surgery, Gynæcology and the Specialties. These subjects are taught by the several Clinical Professors.

The new wing in the University Hospital, for chronic diseases, especially of the heart and lungs, is completed, and thereby unusually good opportunities are afforded for the study of these important affections. This wing has been erected by the liberality of Mr. Henry C. Gibson; and its hundred beds are rapidly being endowed by friends of the University. The Peter Hahn

Digitized by Google

Ward, endowed by the late Dr. George B. Wood, has been opened for the admission of patients.

The resident physicians of the University Hospital are every year selected by competitive examination from among the graduating class of the University. The next examination will be held Tuesday, April 23d, 1889, at 12 M.

OTHER HOSPITALS AND HOSPITAL CLINICS.

In addition to the official clinical lectures and bedside instruction delivered at the University Hospital, medical students have the opportunity of attending clinical lectures in other Hospitals and in private classes formed for the special study of disease.

Close to the grounds of the University is the PHILADELPHIA HOSPITAL with its thousand beds. Here are delivered twice a week Clinical Lectures on Medicine, Surgery, and the Diseases of Women and Children. Lectures on Clinical Medicine and Surgery are also delivered twice a week during the greater part of the year by the Medical Staff of the PENNSYLVANIA HOSPITAL. Instruction in Clinical Surgery and Children's Diseases is given, too, at the CHILDREN'S HOSPITAL. There are also weekly Clinics in Medicine and Surgery at the GERMAN HOSPITAL. To these institutions students are admitted without charge.

During the spring and summer, *private* classes are also formed for Clinical Instruction, for which a moderate fee is charged.

Appointments of RESIDENT PHYSICIANS, amounting to twenty-five or more, are made annually in the different Hospitals of the city. With one or two exceptions these positions are now filled by *competitive examination of candidates.*

From the preceding summary it is evident that a prolonged residence in Philadelphia must be of the utmost value to the student, by enabling him to pursue a systematic course of study and to become practically familiar with the scientific methods of investigating disease, and with the principles and results of its treatment.

THE STILLÉ, H. C. WOOD, WILLIAM PEPPER AND D. HAYES AGNEW MEDICAL SOCIETIES.

These Societies are composed of Second and Third year students. Their meetings are held once a week during the

Digitized by Google

winter session for the reading and discussing of papers referring to the theory and practice of medicine and surgery.

PRIZES.

THE MEDICAL NEWS PRIZE of One Hundred Dollars is awarded to the member of the Graduating Class for the best Essay.

THE ALUMNI MEDAL is awarded by the SOCIETY OF THE ALUMNI of the Medical Department of the University to the member of the Graduating Class who attains the highest general average in examinations.

A PRIZE OF THIRTY DOLLARS is also awarded by the Demonstrator of Anatomy to the member of the Graduating Class who shall present the best record of the anomalies found in the anatomical rooms.

FOUR PRIZES are awarded by the Demonstrator of Surgery for proficiency in Operating and Bandaging;—a first and a second prize of Agnew's and Ashhurst's Surgery (respectively) to students of the first year; a first prize of a copy of Agnew's Surgery, and a second of a pocket-case of instruments, to members of the graduating class.

The names of those to whom the prizes are awarded are announced at the Annual Commencement of the Medical Department.

☞ *The address of the Dean is Medical Department of the University of Pennsylvania, Philadelphia, Penna. His office is in* MEDICAL HALL, *where all business is transacted.*

SOCIETY OF THE ALUMNI OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

The object of this Society is to sustain and advance the interest and influence of the Medical Department by the promotion of sentiments of general brotherhood and amity among the graduates, and by aiding in all efforts to elevate the standard of medical education and to extend the progress of medical science and art.

Any graduate in good standing may become a member by forwarding to the Treasurer the sum of *one dollar;* and thereafter the *annual contribution* shall be *one dollar.*

Digitized by Google

Every member receives a copy of the proceedings of the annual meeting of the Society, and is notified of the Anniversary Reunion, which take place at Commencement time.

It is urgently required that as many of the Alumni of the Medical Department of the University of Pennsylvania as possible avail themselves of the opportunity to join the Society, as an increased membership will greatly strengthen the Society and thereby advance its objects.

OFFICERS FOR 1888.

President—ALFRED STILLÉ, M.D., LL.D.

Vice-Presidents—MEREDITH CLYMER, M.D.
W. S. W. RUSCHENBERGER, M.D.
TRAILL GREEN, M.D.

Secretary and Treasurer—THOMAS R. NEILSON, M.D., 223 South 17th St., Philadelphia.

Chairman of Executive Committee—S. D. RISLEY, M.D., 1722 Walnut St., Philadelphia.

The Alumni Society has just completed the catalogue of the graduates of the Medical Department by the publication of an appendix, covering the years 1878–87 inclusive. Catalogues may be obtained by addressing, or applying to Mr. Wm. H. Salvador, Clerk of the Medical Department, University.

Price: Catalogue, *complete*, ... $1.25
Appendix alone, ...25

Alumni are requested to send to the Secretary of the Society of the Alumni notice of change of residence or other information likely to be of service in perfecting subsequent editions.

Digitized by Google

AUXILIARY DEPARTMENT OF MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

JOHN J. REESE, M.D., Professor of Medical Jurisprudence and Toxicology.

SAMUEL B. HOWELL, M.D., Professor of Mineralogy and Geology.

JOSEPH T. ROTHROCK, B.S., M.D., Professor of Botany.

JOSEPH LEIDY, M.D., LL.D., Professor of Comparative Anatomy and Zoölogy.

SAMUEL G. DIXON, M.D., Professor of Hygiene.

SAMUEL G. DIXON, *Dean.*

MATRICULATES.

Casselberry, W. E., M.D.,	Chicago, Ills.
Doan, Henry H.,	Philadelphia.
Davis, J. Aubrey, M.D.,	do.
Egbert, Seneca, M.D.,	do.
Galloway, Albert B., A.B. (C.H.S.),	do.
Jameson, William B., M.D.,	do.
Massinger, Charles Jerome,	Chalfont.
Morton, Samuel W., M.D.,	Philadelphia.
Phillips, Horace,	do.
Rothermel, Pius,	Molltown.
Scheider, Louis Theo.,	Philadelphia.
Stitt, E. R., A.B., Ph.G.,	Rock Hill, S. C.
Wilson, Samuel M., A.B. (C.H.S.),	Philadelphia.

Total, 13.

The Auxiliary Faculty of Medicine supplements the customary winter course of medical instruction by lectures on collateral branches of Science essential to the thorough education of the physician. The course is essentially post-graduate. There can be no matriculation until the student has entered upon his third year of medical study. His second year in this department should be taken in connection with the fourth year of medical instruction for which the University now provides.

Digitized by Google

The session for 1889–90 will begin on Tuesday, October 1st, and continue until the early part of May.

The matriculation book will be closed after November 1st, except to such students as show the Dean good reasons for longer indulgence.

FEES.

The lectures are free to the medical students, and medical graduates, of this University. Other matriculates pay a matriculation fee of five dollars and a tuition fee of fifteen dollars for each professor's course, or thirty-five dollars for all the courses. The graduation fee is ten dollars.

DEGREES.

Graduates in Medicine of this University, or of other Medical Schools on its *ad eundem* list, who have attended two full courses of instruction in this Department, have presented an *original thesis* on one of the subjects taught, and have passed a satisfactory examination, will receive the Degree of Bachelor of Science (B.S.), on complying with the following conditions:

(1) When applying for examination the candidate must exhibit his medical diploma to the Dean, and show that he has paid all University dues.

(2) The thesis must be presented to the Dean, and the graduation fee be paid by the 15th day of May.

(3) Candidates must be present at Commencement, unless excused by the Faculty.

SPECIAL STUDENTS.

The lectures and laboratories of this Department are open to other persons than those engaged in the study of Medicine. Admission may be obtained from the Dean, either to the whole course of Lectures, or to Lectures on a single branch. Such special students receive no degrees, but the Faculty may give certificates of attendance.

PRIZE.

A fifty-dollar microscope will be given to the student who passes the best examination in Hygiene, provided that the examination is satisfactory to the Professor of this branch.

Digitized by Google

MUSEUM.

The Museum of the Auxiliary Department of Medicine contains three thousand mineral specimens systematically arranged; a collection of rocks, fossils, and casts, arranged according to their geological succession; a valuable philosophical apparatus; a growing collection of specimens of Comparative Anatomy and Zoölogy; chemical preparations and apparatus illustrative of Toxicology and Hygiene; diagrams, etc. These collections are arranged in the rooms of the Faculty.

COURSE OF STUDY.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.—Subjects of legal medicine on which the physician may be called upon to give evidence in a court of justice:—

Signs of Death; Personal identity (*identification of the living and the dead*); Feigned Diseases; Violent Deaths (*homicidal* and *suicidal*) from (a) *wounds*, (b) *hanging*, (c) *strangling*, (d) *suffocation*, (e) *drowning*, (f) *heat*, (g) *cold*, (h) *starvation*, (i) *lightning*, (k) *poisoning*.

Infanticide and criminal abortion; Signs of Pregnancy and of Delivery; Legitimacy; Rape; Survivorship.

The Jurisprudence of Insanity (*civil* and *criminal responsibility; feigned insanity; rights of the insane; plea of insanity as a bar to judicial punishment*).

The Legal Rights and Liabilities of Physicians; Medical Experts—their rights and compensations.

Life Insurance in its medico-legal relations.

Medical Malpractice.

Poisoning, with special reference to *testing;* modes of procedure in order to determine the presence of poisons in cases of homicide and suicide.

MINERALOGY.—First Year: Instruction by Lectures and Text-book study, giving leading facts and principles as a branch of general education, and also preparing for practical application to Geology. This includes crystallography, physical and chemical properties of minerals, classification and description of all the leading species, with a complete collection to illustrate these teachings. In the Laboratory the student learns blowpipe analysis to determine minerals. Use of the spectroscope is taught. The examination is both written and oral, with practical determinations.

GEOLOGY.—Second Year: Lectures and practical work. This includes lithological classification, stratification or bedding, fossiliferous and unfossiliferous rocks, origin of rocks, denuding agents, dissolved matter extracted by the agency of animals and plants, derivative rocks and their relations to the history of the globe,

Digitized by Google

present positions of rocks, present interior and exterior conditions of the earth, causes of upheaval and contortion, origin of heat required for volcanic energy and metamorphism, changes of climate, mineral springs, geographical distribution of disease realms, soils in relation to malaria, drainage basins and lines, permeability of rocks as related to discharge of rivers, character of river water as depending upon chemical composition of rocks, and outlines of historical geology. The practical work in the Laboratory includes plotting from field notes, location of outcrops, construction of sections, reports on districts visited by students, description of strata, and determination of rocks and fossils.

BOTANY.—First Year: Instruction is by Lectures upon structural and physiological botany; and also as time permits, upon properties of plants.

Second Year: Instruction by Laboratory exercises in vegetable histology and in analytical botany. Such students as are far enough advanced can also receive instruction in methods of study and in life-histories of the lower forms of plant life.

There is an examination at the end of each year.

Under proper restriction a large herbarium is available to advanced students, for purpose of critical comparison of plants.

HYGIENE.—Sanitary science, especially in the direction of Preventive Medicine, has advanced so rapidly during the past few years that in this brief course only the more important subjects can be treated of in detail. Particular attention is directed to the practical application of sanitary knowledge, in accordance with the standard of efficient requirement in this branch justly demanded by the Illinois and other State Boards of Health.

1. Nature, causes, mode of propagation, and prophylaxis of preventable diseases—heredity and other modifying influences which affect their development—avoidance or control of maladies by quarantine, disinfection, isolation, etc. 2. Special prophylactic measures and hygienic management of cholera, typhoid fever, small-pox, glanders, trichiniasis, and the disturbances of health produced by parasites. 3. Analysis of air; sanitary meteorology; heating and ventilation; examination of drinking water; drainage and sewerage. 4. Food and drink as conditioning *all* physical and mental manifestations of vitality; impurities, deteriorations and adulterations of food,—their effects upon the human organism,—means of detecting their existence and obviating their injurious action. 5. Chemistry of Cooking. 6. Principles of hospital construction; military, naval, school, industrial and personal hygiene.

COMPARATIVE ANATOMY AND ZOÖLOGY.—1. An outline of the classes of animals. 2. A succinct account of their anatomy and embryology. 3. Explanation of "varieties" of human anatomy, and the proper method of studying malformations. 4. A description of human parasites. 5. An account of the more important sources of those articles of the materia medica which are derived from the animal kingdom.

Digitized by Google

The principal text-books used are:—

Taylor's *Medical Jurisprudence* (American edition by Reese).
Reese's *Manual of Toxicology.*
Reese's *Medical Jurisprudence and Toxicology.*
Dana's *System of Mineralogy.*
Elderhorst's *Manual of Qualitative Blowpipe Analysis.*
Dana's *Manual of Geology.*
Ganot's *Élémenls de Physique*, translated by Atkinson.
Gray's *Text-Book of Botany*, Vols. 1 and 2.
Gray's *Manual of Botany.*
Parkes' *Manual of Hygiene.*

Works of reference:—

Wharton and Stillé's *Medical Jurisprudence.*
Taylor's *Medical Jurisprudence.*
Tidy's *Legal Medicine.*
Sach's *Text-Book of Botany.*
Le Maout and Decaisne's *General System of Botany, Descriptive and Analytical.*
Cooke and Berkely on *Fungi.*
Wilson's *Manual of Hygiene.*
Buck's *Hygiene and Public Health.*
Pavy or Chambers on *Diet.*
Mivart's *Elements of Anatomy.*
Nicholson's *Manual of Zoölogy.*
Gegenbaur's *Elements of Comparative Anatomy.*
Balfour's *Comparative Embryology.*
Williams on *Chemistry of Cooking.*

Digitized by Google

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BOARD OF MANAGERS.

RICHARD WOOD, PRESIDENT.
WM. F. NORRIS, M.D., VICE-PRESIDENT.
S. S. STRYKER, M.D., SECRETARY.
WHARTON BARKER, TREASURER.

WM. PEPPER, M.D., LL.D., PROVOST.

ON THE PART OF THE CONTRIBUTORS TO ENDOWMENT FUND.

ISAIAH V. WILLIAMSON, JOHN WANAMAKER,
SAMUEL ASHHURST, M.D., W. F. NORRIS, M.D.,
THOMAS DOLAN, GEORGE FALES BAKER, M.D.,
J. HOWARD GIBSON.

ON THE PART OF THE BOARD OF TRUSTEES.

RICHARD WOOD, G. D. BOARDMAN, D.D., LL.D.,
JAS. H. HUTCHINSON, M.D., WILLIAM HUNT, M.D.,
HORACE HOWARD FURNESS, PH.D., LL.D.

ON THE PART OF THE FACULTY.

JOSEPH LEIDY, M.D., LL.D., JOHN ASHHURST, JR., M.D.,
THEODORE G. WORMLEY, M.D., LL.D.

ON THE PART OF THE ALUMNI.

HORACE Y. EVANS, M.D., RICHARD A. CLEEMANN, M.D.,
SAMUEL S. STRYKER, M.D.

CHAIRMEN OF STANDING COMMITTEES.

ON FINANCE: JOHN WANAMAKER.
ON PROPERTY AND REPAIRS: J. H. HUTCHINSON, M.D.
ON SUPPLIES: HORACE Y. EVANS, M.D.
ON LIBRARY AND MUSEUM: JOHN ASHHURST, JR., M.D.

Digitized by Google

The *Medical Staff* and *Officers* of the Hospital are given on pages 74–76.

THE UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between 34th and 36th Streets, and Spruce and Pine Streets, given by the City of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction in 1874. In 1882, a new wing was added through the liberality of Mr. Henry G. Gibson for patients suffering from Chronic Diseases.

The MAIN BUILDING, besides the offices and the rooms of the officers, has a large clinical Amphitheatre, which will seat six hundred students, and a smaller one for one hundred and fifty. It also has ten rooms for private patients. The wing adjoining has five wards, with a capacity of one hundred and ten patients, and four private rooms. The wing for Chronic Diseases has room for sixty-two patients in its six wards. There is therefore full accommodation for one hundred and eighty-six patients. In the basement are surgical and medical dispensaries for out-door patients. In connection with the Orthopædic Dispensary is a workshop, in which braces and other appliances are made.

The hall-ways are well-lighted and spacious, and can be used as wards, should there be any sudden demand which the capacity of the regular wards could not meet.

The Hospital is also well adapted to purposes of teaching. A large proportion of the instruction given to the students in the Medical School is given here, as will be seen by reference to the rosters.

All cases of accident occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night. An ambulance will be sent for them, if notice is given by telephone or messenger.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to

Digitized by Google

the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is $7.00 a week; in the private rooms, of which there are fourteen, the prices range from $12.00 to $25.00 a week. The friends of the patients can be accommodated in the Hospital, under certain circumstances, but it is better for them to board in the neighborhood, where rates range from $4.50 per week upwards.

No patient with acute venereal disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon. There are special departments for mania-à-potu patients.

Visitors are admitted to see patients in the private rooms at all times.

Visitors are admitted to the wards on week-days between 2 and 4 P.M. Under no circumstances are they admitted on Sunday, except in case of near relatives of patients whose condition is very critical.

There are elected annually from the graduating class of the Medical School three Resident Physicians, who come on duty for one year at intervals of four months.

An Annual Report of the Hospital is published, giving minute statistics of the year. Copies can be had on application to the Superintendent.

Communications concerning the business of the Hospital and the admission of patients should be addressed to the Superintendent, Miss Locke, and not to the Dean or Secretary of the Medical Faculty.

Digitized by Google

DEPARTMENT OF DENTISTRY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

CHARLES J. ESSIG, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy.

EDWIN T. DARBY, M.D., D.D.S., Professor of Operative Dentistry and Dental Histology.

JAMES TRUMAN, D.D.S., Professor of Dental Pathology, Therapeutics and Materia Medica.—SECRETARY.

JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.

THEODORE G. WORMLEY, M.D., LL.D., Professor of Chemistry.

EDWARD T. REICHERT, M.D., Professor of Physiology.

ROBERT HUEY, D.D.S., Lecturer on Operative Dentistry.

CLINICAL INSTRUCTORS.

DR. C. S. BECK,	DR. E. H. NEALL,
DR. GEO. W. KLUMP,	DR. H. C. REGISTER,
DR. W. G. A. BONWILL,	DR. I. F. WARDWELL,
DR. W. R. MILLARD,	DR. J. A. WOODWARD,
DR. R. R. UNDERWOOD,	DR. H. C. LONGNECKER.

DEMONSTRATORS.

WM. DIEHL, D.D.S., Demonstrator of Operative Dentistry.

J. JUDSON EDWARDS, D.D.S., Demonstrator of Mechanical Dentistry.

GEORGE G. MILLIKEN, D.D.S., Assistant Demonstrator of Operative Dentistry.

JAMES E. LODER, D.D.S., Assistant Demonstrator of Operative Dentistry.

HARRY B. McFADDEN, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

JOSEPH W. WHITE, D.D.S., Assistant Demonstrator of Operative Dentistry.

AMBLER TEES, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.

MILTON POWEL, D.D.S., Assistant Demonstrator of Operative Dentistry.

Digitized by Google

R. HAMILL D. SWING, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

FREDERICK W. AMEND, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.

MILTON N. KEIM, JR., D.D.S., Assistant Demonstrator of Mechanical Dentistry.

HORACE McCANNA, D.D.S., Assistant Demonstrator of Mechanical Dentistry.

J. EDWARD DUNWOODY, D.D.S., Assistant Demonstrator of Operative Dentistry.

JOHN MARSHALL, M.D., NAT.Sc.D., Demonstrator of Practical Chemistry.

JOHN B. DEAVER, M.D., Demonstrator of Anatomy.

MATRICULATES.

SECOND YEAR.

Adams, Philip W.,	Worcester, Mass.,	J. F. Adams.
Albury, Robert W.,	Nassau, Bahamas,	University.
Ayala, Victor M.,	Matanzas, Cuba,	University.
Barnett, George E.,	WallaWalla, W. T.,	A. W. Calder.
Bruce, James A.,	Melbourne, Australia,	Heath & Kernot.
Calves, Antonio D.,	Havana, Cuba,	University.
Cheney, Lucius W.,	Lee, Mass.,	S. K. Saunders.
Cooney, Edward J. M.,	Providence, R. I.,	G. Carrow Chance.
Cooper, Arthur W.,	Omaha, Nebraska,	R. G. & A. J. Richter & T. Judd.
Culpeper, Wm. A., M.D.,	Barbados, W. I.,	R. L. Culpeper.
Darby, George D. B.,	Lansdowne,	Edwin T. Darby.
DeLacy, William P.,	Scranton,	W. B. Henwood.
DeWalt, J. Edward,	Freeport, Ills.,	Kingsley, Allen & Sunderland.
Diehl, Walter R.,	Pittsburgh,	Chas. E. Diehl.
Dunbar, Henry T.,	N. Hartland, Vt.,	G. W. Hoffman.
Eaton, Horace E.,	Parrsboro, N. S.,	University.
Essig, Norman S.,	Philadelphia,	Charles J. Essig.
Evans, Milton H.,	Tower City,	A. S. Koser.
Faust, William F., B.S.,	Womelsdorf,	P. K. Filbert.
Focht, Frank D.,	Philadelphia,	University.
Fordham, J. Merritt,	Scranton,	J. L. Fordham.
Fuller John G.,	Philadelphia,	W. L. Cave & G. G. Milliken.
Gerhards, Georg,	Düsseldorf, Germany,	University of Berlin.
Goldsmith, Adin A.,	Chester, N. H.,	Boston Dental Coll.
Goldsmith, Sam'l L., A.B.,	Philadelphia,	W. Lewis Cave.
Gray, George R.,	Worcester, Mass.,	Harris & Toombs.
Grotefend, George A.,	Shasta, California,	University.
Guiteras, Albert F.,	Matanzas, Cuba,	University.
Hart, Frank T.,	Pennington, N. J.,	University.

Digitized by Google

Horgan, Cornelius F.,	Philadelphia,	University.
Keyes, Charles,	Rio de Janeiro, Brazil,	Dental Dept., Med. Fac., Rio de Janeiro.
Lamson, Frank E.,	Worcester, Mass.,	University.
Lamson, William F.,	New York, N. Y.,	University.
Leake, Walter J.,	Lockport, N. Y.,	Chas. Watts.
Littig, Henry A.,	Davenport, Iowa,	University.
Lowry, Samuel S.,	Brookville,	M. B. Lowry.
Luxemburger, George,	Scranton,	University.
Mayer, George H.,	Mauch Chunk,	J. A. Mayer.
Miro, José Luis,	Havana, Cuba,	University.
Mogel, Peter S.,	Bernville,	Eli Slegel.
Nunez, Emilio,	Sagua, Cuba,	University.
O'Bourke, John M.,	Trinidad, Cuba,	University.
Oser, William,	Basel, Switzerland,	Univ. of Geneva.
Parry, Ira W.,	Utica, N. Y.,	A. Retter.
Peeso, Frederic A.,	Syracuse, N. Y.,	University.
Rees, Frank W.,	Walla Walla, W. T.,	L. M. Davis.
ReQua, Leroy,	Rochester, N. Y.,	J. ReQua.
Rhone, Charles E.,	Bellefonte,	J. W. Rhone.
Ribas, Domingos P.,	Pelotas, Brazil,	Dental Dept., Med. Fac., Rio de Janeiro.
Robinson, John Best,	Philadelphia,	University.
Root, George S.,	Lockport, N. Y.,	F. Balcom.
Roys, Frank E.,	Bridgeport, Conn.,	L. E. Sage.
Sauers, Frederick,	Philadelphia,	University.
Seebold, Frank P.,	Millersburg,	E. H. Leffler.
Stiles, William E., M.D.,	Pittston,	University.
Stine, Frederick M.,	Walla Walla, W. T.,	University.
Sweetnam, Robert W.,	Manistee, Mich.,	J. L. Sweetnam.
Trogdon, Rosecrans,	Paris, Ills.,	H. J. Ball.
Velazquez, Miguel A.,	St. Jose, Costa Rica,	University of Mich.
White, Leonard,	Sumter, S. C.,	University.
Wix, William H.,	Wilmington, Del.,	University.
Woodward, Wilber S.,	Cincinnati, Ohio,	W. H. Woodward.
Woolsey, Charles G.,	Girard,	W. L. Battles.

Students of the Second Year, 63.

FIRST YEAR.

Barnard, William, E.,	Still Pond, Md.,	R. H. John.
Bowman, Ira C.,	Lebanon,	J. P. Bowman.
Burket, Frank S.,	Williamsport,	C. C. Walker.
Clement, Frederick G.,	Oxford,	J. M. Clement.
Cohn, Alfred J.,	Milwaukee, Wis.,	B. G. Maercklein.
Compton, James D.,	Churchtown,	S. A. Zell.
Crothers, J. Ernest,	Greenfield, Ohio,	Edwin J. Waddel.
Davenport, Kirk A.,	Union, N. Y.,	I. B. Davenport.
Davenport, William S.,	Union, N. Y.,	I. B. Davenport.
DeHaven, William W.,	Churchtown,	S. A. Zell.
DeVore, Wesley,	Freeport, Ills.,	University.
Dunn, William C.,	Meadville,	D. C. Dunn.
Fagan, Owen J.,	Fall River, Mass.,	University.

Digitized by Google

Emerson, Charles A.,	Bellefontaine, Ohio,	University.
Fair, Delbert D.,	Freeport, Ills.,	W. W. Krape.
Flotzinger, Aloysius,	Pittsburgh,	University.
Foster, A. Lee,	Philadelphia,	University.
Freeman, Stewart,	Milton, Nova Scotia,	University.
French, Arthur T.,	Ocala, Fla.,	J. C. Perine.
Geilfuss, Edwin A.,	Milwaukee, Wis.,	W. C. Wendel.
Gibbon, John H.,	Charlotte, N. C.,	Robt. Gibbon.
Giles, William J.,	Montreal, Canada,	University.
Graves, Edwin D.,	Philadelphia,	C. E. Graves.
Haupt, J. A. Jacob,	Pittsburgh,	H. L. Reinecke.
Holly, Sabourin,	Port au Prince, Hayti,	University.
Hubbel, George C.,	Pittsfield, Mass.,	S. S. Stowell.
Hyatt, L. Stanford,	Connellsville,	University.
Hyndman, G. Edward,	Sherbrooke, Canada,	L. W. Dowlin.
Jackson, Harvey N.,	Ft. Atkinson, Wis.,	Geo. C. Kollock.
Keener, George I.,	Morgantown, W. Va.,	Geo. B. Morris.
Küsel, George C.,	Philadelphia,	G. J. R. Miller.
Lane, James G.,	Cora,	T. M. Rhodes.
Leard, Norman W.,	Tryon, P. E. I.,	University.
Leech, William W.,	Philadelphia,	H. K. Leech.
Lombard, Rafael M.,	Cienfuegos, Cuba,	University.
Ludwick, John G.,	Honey Brook,	J. H. Sahler.
McCall, Frederic W.,	Binghamton, N. Y.,	Chas. W. McCall.
McCartney, Frank M.,	Randolph,	University.
Matten, Harry D.,	Port Clinton,	University.
*Meixell, Edwin W.,	Wilkes-Barre,	University.
Norton, David A.,	Madison, Wis.,	W. D. Stillman & E. C. Weston.
O'Hara, Patrick J.,	Parsons,	University.
O'Sullivan, Rich. B., B.A.,	St. Andrews, Canada,	University.
Paynter, George J.,	Philadelphia,	John C. Paynter.
Proctor, George S.,	Pittsburgh,	S. S. Macfarlane.
Pugh, Abe L.,	Pittston,	John McDougall.
Requa, Herbert D.,	Rochester, N. Y.,	Davis & Link.
Romig, E. Lincoln,	Philadelphia,	G. J. R. Miller.
Root, Clarence M.,	Lockport, N. Y.,	T. Balcom.
Russell, Howard C.,	Washington, D. C.,	University.
Sacaza, Santiago,	Granada, Nicaragua,	University.
Sayres, B. Franklin,	Philadelphia,	University.
Simpson, Robert,	St. Andrews, Canada,	G. W. Beers.
Snyder, Charles L.,	Freeport, Ills.,	Allen & Sunderland.
Spencer, Walter A.,	Pleasant Mount,	University.
*Starr, George E.,	Germantown,	University.
Stevens, Frederick W.,	Dartmouth, N. S.,	A. C. Cogswell.
Trout, Will H.,	Landisville,	Martin B. Musser.
Valiente, Francis P.,	Santiago, Cuba,	University.
*Vaughan, Herbert E.,	Springville, N. Y.,	A. L. Vaughan.
Whitmarsh, Herbert D.,	Cortland, N. Y.,	Chas. W. McCall.
Wood, Linneaus B.,	New Bedford, Mass.,	Joseph Head.
*Yerger, George M.,	Philadelphia,	University.

Students of the First Year, 63.

* Not in attendance.

Digitized by Google

SPECIAL STUDENT.

Despecher, Felix J., D.D.S., Orsay, France, University.

Students of the Second Year,	63
Students of the First Year,	63
Special Student,	1
Total,	127

The total number of new matriculates the present session, including those admitted to advanced standing, is 74.

SUMMARY.

Australia	1	Michigan	1
Bahamas, W. I.	1	Nebraska	1
Barbados, W. I.	1	New Hampshire	1
Brazil	2	New Jersey	1
California	1	New York	13
Canada	4	Nicaragua, C. A.	1
Connecticut	1	North Carolina	1
Costa Rica	1	Nova Scotia	3
Cuba	8	Ohio	3
Delaware	1	Pennsylvania	49
District of Columbia	1	Prince Edwards Island	1
Florida	1	Rhode Island	1
France	1	South Carolina	1
Germany	1	Switzerland	1
Hayti	1	Vermont	1
Illinois	5	Washington Territory	3
Iowa	1	West Virginia	1
Massachusetts	7	Wisconsin	4
Maryland	1		
		Total	127

COURSE OF STUDY.

The Course extends over two years, and in each year there are two Sessions, the Winter and the Spring. By this arrangement, students are spared the necessity of securing a preceptor during their stay in the city; the Faculty deem attendance during the spring and summer months equivalent to private instruction. *Such attendance, however, is not to be considered in any way a substitute for the Winter Session.*

During the Winter Session the following is the arrangement of studies:

Digitized by Google

FIRST YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	General Chemistry.	General Chemistry.				
10 A.M.	Mechanical Clinic.			Mechanical Clinic.	Mechanical Clinic.	
11 A.M.		Chemical Laboratory.	Chemical Laboratory.			
12 M.						Dental Materia Medica.
1 P.M.		Operative Clinic.		Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.		Operative Clinic.			
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Operative Dentistry.	Physiology.	Operative Dentistry.	Physiology.	
5½ P.M.	Mechanical Dentistry.		Metallurgy.		Dental Pathology and Therapeutics.	

The curriculum of the first year is identical for Medical and Dental students as far as Anatomy, Chemistry, and Physiology are concerned.

SECOND YEAR.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A.M.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.	Laboratory of Mechanical Dentistry, or Operative Clinic.
10 A.M.						
11 A.M.						
12 M.			Univ. Hosp. Clinics.			
1 P.M.		Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
2½ P.M.	Operative Clinic.					
3½ P.M.		Anatomy.		Anatomy.	Anatomy.	
4½ P.M.	Physiology.	Operative Dentistry.	Physiology.	Operative Dentistry.	Physiology.	
5½ P.M.	Mechanical Dentistry.		Metallurgy.		Dental Pathology and Therapeutics.	

Digitized by Google

In order to facilitate work in the practical departments, and to give full employment to the student, the morning hours of the first year are devoted equally to dental and chemical laboratory work.

During the second year the student has the entire forenoon of each day for practical dental work. Ample opportunity is afforded for practice in operative and mechanical dentistry. In the latter branch the students of the Junior year are divided into sections, thus devoting the morning hours to practice in the operative and mechanical rooms.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth, the functions and microscopical peculiarities of the dental organs, the development of teeth, their component tissues, a full description of the materials and instruments used in operative dentistry, a thorough elucidation of all dental operations, such as filling, extracting, regulating, the pathological relations of the teeth to the other parts of the system, and a minute description of all diseases related to dental surgery or of interest to the dentist. The methods taught are demonstrated in clinics.

The instruction in MECHANICAL DENTISTRY AND DENTAL METALLURGY embraces the proper fitting up of a dental laboratory, the use of tools, the melting, refining, alloying and working of metals and alloys used by the dentist, the chemical and physical properties of materials pertaining to ceramic dentistry, their preparation, and the most approved formulas for compounding bodies and enamels for the manufacture of block teeth and continuous gum work, the history and properties of all substances used in making artificial dentures, as well as the mechanical treatment of cleft palate, including the several methods of constructing obturators for such cases, whether congenital or acquired. The lectures in this department also include every approved mechanical means of correcting irregularities of the teeth, and are amply illustrated by specimens, models, diagrams, and practical application in the laboratory, under the supervision of accomplished mechanical dentists. Special attention will be

Digitized by Google

directed to the higher branches of plate work, the continuous gum process, and carving teeth.

Every student is required to furnish his own bench tools for metal and rubber work, and will be provided with a place in which they can be locked when not in use.

The lectures in CHEMISTRY embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds, and of the fundamental principles of organic chemistry, including the classification of organic compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

The course in practical chemistry in the laboratory includes exercises in chemical manipulation, the study of the chemical manipulation, the study of the chemical properties of the principal metals, and the reactions of acids and their combinations, and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds which are of interest to practitioners in all branches of medicine. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the direction of demonstrators, as well as to exhibit by formulas, on paper, all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the departments of medicine, including dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, large and well-executed models, and drawings.

The course on PHYSIOLOGY includes lectures, with demonstrations, on the entire human physiology and on physiological chemistry. The study of the physiology of each organ is preceded by a full consideration of its histology. The course is amply illustrated by appropriate diagrams, chemico-physiological experiments, and vivisections.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects

Digitized by Google

taught. Dentition and its possible pathological results receive careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable, the character—normal and abnormal—of the oral secretions, and the direct and remote relations which the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes by which to secure a return to normal conditions are minutely detailed.

MATERIA MEDICA will be taught with special reference to the character and value of those remedies that have any bearing upon dental therapeutics.

General and special Histology will be taught in the laboratory, and lectures will also be given by the Demonstrator of this Department.

CLINICAL INSTRUCTION.

Four hours daily (except Saturday) are spent in actual practice under the supervision of the Demonstrators. Every student is required to provide his own instruments, except those for extracting. He is expected to keep them in perfect order, and will be provided with a place in which they can be locked when not in use. In the operating room, wires are arranged to a number of the chairs for the use of electric pluggers.

INFIRMARY AND LABORATORY.

The Infirmary and Laboratory are open to the students for practice every day during the week excepting Saturday afternoon, this being reserved for Clinics that may be given by members of the faculty or instructors.

THE STILLÉ MEDICAL LIBRARY.

This library, founded by Professor Alfred Stillé, for the purpose of promoting scientific research and literary culture, contains upwards of six thousand bound volumes and as many unbound volumes and pamphlets. During the Winter and Spring Sessions it is open to students and graduates of the Dental Department under appropriate regulations.

Digitized by Google

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, and annually augmented, is unequaled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy, a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc., and an extensive collection of models, which are used in illustrating the course of lectures. It is open every Wednesday and Saturday from 9 A.M. to 12 M., throughout the sessions. The matriculation fee in this Department confers admission to the Museum.

SESSIONS.

The *Spring Session*, 1889, begins on Thursday, May 2d, and ends the last of June. The work of this session is entirely practical; no lectures are delivered.

The *Introductory Session* begins on Monday, September 16th, and is free to those who enter for the Winter Session.

The *Winter Session*, 1889–90 begins on Tuesday, October 1st, 1889, and ends on May 1st, 1890.

EXAMINATIONS.

At the close of the first year, examinations are held in Chemistry and Materia Medica. If the student fail to pass, a second examination is afforded him at the beginning of the next Winter Session.

The final examination is in Anatomy, Physiology, Operative Dentistry, Mechanical Dentistry and Metallurgy, and Dental Pathology and Therapeutics.

Students who have attended one full term in another dental school recognized by the Faculty will be admitted to the graduating class without examination, upon presentation of the required certificate.

Students holding a medical diploma will be admitted to the Senior Class without examination, but will be required to spend a year in the study of practical Dentistry in the Operative and

Digitized by Google

Mechanical Departments, including the regular winters' course of lectures.

Students who have attended but one course in a medical college will be required to take two winter courses in this Department.

An examination is required for entrance to the Junior year. The requirements of this examination are a good English education. Students who have certificates properly attested from colleges, or schools of reputable character, will be accepted without examination.

DEGREES.

At the close of the second year, after passing satisfactorily all examinations, the student will receive the Degree of Doctor of Dental Surgery (D.D.S.), under the following regulations:

I. The candidate must be of age and of good moral character, and must have attended two full winter sessions—the second, in this institution.

II. He must have dissected at least two parts, must have performed thoroughly and to the satisfaction of the Professor of Operative Dentistry all the usual dental operations, must have undertaken at least one artificial case, and brought it completed, with the patient, to the Professor of Mechanical Dentistry, thirty days before the close of the term, and must have prepared for presentation to the Professor of Mechanical Dentistry, before the 1st of April, a specimen case to be deposited in the College collection. The operations, as well as the work on the artificial case, must have been performed at the College building.

III. He must be present at Commencement, unless excused by the Faculty.

TEXT-BOOKS AND WORKS OF REFERENCE.

On Operative Dentistry and Dental Histology: Harris's *Principles and Practice;* Tomes's *Dental Surgery;* Taft's *Operative Dentistry;* Tomes's *Dental Anatomy.*

On Mechanical Dentistry and Metallurgy: Richardson's *Mechanical Dentistry;* Wildman's *Instruction in Vulcanite Work;* Kingsley's *Oral Deformities;* Essig's *Dental Metallurgy.*

On Anatomy: Leidy's *Elementary Treatise on Human Anatomy;* Gray's *Anatomy;* Stricker's *Manual of Histology.*

Digitized by Google

Dental Follicle: Legros and Magitot, translated by M. S. Dean.

On Chemistry: Fownes's or Wurtz's *Chemistry;* Wormley's *Micro-Chemistry of Poisons;* Muter's *Analytical Chemistry;* Mitchell's *Dental Chemistry.*

On Physiology: Foster's *Physiology* with Frey's *Compendium of Histology;* Tyson's *Cell Doctrine;* Yeo's *Physiology.*

On Materia Medica: H. C. Wood's *Therapeutics;* Geo. B. Wood's *Therapeutics;* Wood and Bache's *Dispensatory.*

On Surgery: Agnew's *Surgery;* Ashhurst's *Surgery;* Billroth's *Surgical Pathology.*

EXPENSES.

Winter Term.

Matriculation Fee,	$5 00

First Year.

Tuition Fee,	$100 00

Second Year.

Tuition Fee,	$100 00
Fee for Dissection,	10 00
Graduation Fee,	30 00
For each additional year,	$100 00

The payment of the $100 Tuition Fee may be divided as follows: $50 on entering, and the balance on or before November 1st. If any part is left unpaid after this date, $10 will be added to the Tuition Fee.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover "breakage" in the chemical laboratories. Any balance remaining is returned.

Board can be obtained in Philadelphia for $4 per week and upwards. Further information may be obtained from

JAMES TRUMAN, Secretary,
3249 Chestnut Street, Philadelphia, Pa.

The subjoined reports give some conception of the character and of the mass of work performed in the Operative and Mechanical Departments; but the amount of costly material and of careful attention necessary for the insertion of 4392 gold fillings can be appreciated only by the experienced operator.

Digitized by Google

The number of patients (5012) exhibits not only a gratifying confidence in the management of these departments, but also the value of the service to a large class of persons of limited means.

OPERATIVE DEPARTMENT.

Session of 1887–8.

Number of Patients . . . . . 5012.

Gold Fillings	4392
Tin Fillings	1047
Cement Fillings	1166
Amalgam "	309
Gutta Percha Fillings	733
Canal "	261
Pulps capped	173
" devitalized	197
" extracted	233
Artificial Crowns	95
Pulpitis	364
Treatment Pulp Canals	610
Pericementitis	121
Alveolar Abscess	150
Inflammation of Gums	190
Pyorrhœa Alveolaris	79
Irregularities Corrected	80
Salivary Calculi	441
Teeth and Roots extracted	4075
Total,	14,616

Amount of gold used for fillings, and exclusive of that used for plate and crown work in Laboratory, 52 ounces (4 lbs. 4 oz.).

MECHANICAL DEPARTMENT.

Session of 1887–8.

Number of patients . . . . . 634.

Full cases	313
Partial cases	168
Pivot teeth	39
Repairing cases	30
Regulating "	137
Total,	687

Digitized by Google

DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

RUSH SHIPPEN HUIDEKOPER, M.D., VETERINARIAN (Alfort), DEAN OF THE FACULTY, Professor of Internal Pathology and Zootechnics, and *pro tempore* Professor of Veterinary Anatomy.

JOSEPH LEIDY, M.D., LL.D., Professor of Zoology.

JAMES TYSON, M.D., Professor of General Pathology and Morbid Anatomy.

HORATIO C. WOOD, M.D., LL.D., Professor of Materia Medica, Pharmacy and General Therapeutics.

THEODORE G. WORMLEY, M.D., LL.D., Professor of Chemistry and Toxicology.

JOSEPH T. ROTHROCK, B.S., M.D., Professor of Botany.

ROBERT MEADE SMITH, M.D., Professor of Comparative Physiology.

WILLIAM L. ZUILL, M.D., D.V.S., Professor of Surgical Pathology and Obstetrics.

WILLIAM POWELL WILSON, Sc.D., Professor of Anatomy and Physiology of Plants.

DEMONSTRATORS.

ALEXANDER GLASS, V.S., Demonstrator of Therapeutics, Materia Medica, and Pharmacy.

HENRY F. FORMAD, M.D., Demonstrator of Pathology and Morbid Anatomy.

SIMON J. J. HARGER, V.M.D., Demonstrator of Veterinary Anatomy.

CHARLES WILLIAMS, V.M.D., Demonstrator of Surgical Pathology.

JOHN MARSHALL, M.D., NAT.SC.D., Demonstrator of Practical Chemistry.

LOUIS OLRY LUSSON, V.M.D., Demonstrator of Internal Pathology.

Digitized by Google

GULDIN R. HARTMAN, V.M.D., Assistant Demonstrator of Anatomy.

GARRETT EDWARDS, Farrier, Demonstrator of Forging and Horse-shoeing.

R. S. HUIDEKOPER, Dean,
36th and Pine Streets, Philadelphia, Pa.

MATRICULATES, 1888–89.

THIRD YEAR.

Baer, Benjamin S. J.,	Mount Joy.
Boon, George M.,	Philadelphia.
Brimhall, Simon D.,	Minneapolis, Minn.
Gatchel, Enoch M.,	West Chester.
Harker, George Frank,	Wrightstown, N. J.
Mackie, Frank H.,	Fair Hill, Md.
Magill, Chalkley H.,	Philadelphia.
Mattson, William H.,	Ward.
McNeill, James C.,	Pittsburgh.
Smith, Frank L.,	Philadelphia.
Willard, Samuel B.,	Yardley.

SECOND YEAR.

Bannister, Harry,	Philadelphia.
Batten, Eugene C.,	Philadelphia.
Cohen, Nathan A.,	Philadelphia.
Dohan, Charles A.,	Philadelphia.
Eshleman, John M.,	Fagg's Manor.
Harrigan, John W.,	Philadelphia.
Jolly, Charles Rudolph,	Philadelphia.
Jones, William H.,	Millerstown.
Kean, Thomas J.,	Lock Haven.
Landes, Edgar H.,	Philadelphia.
Larzelere, Samuel D.,	Willow Grove.
Le Fevbre, Christian E.,	Lampeter.
Maher, John J.,	Philadelphia.
Meisner, Harry A.,	Baltimore, Md.
Michener, Mayhew,	Colmar.
Millar, Harry C.,	Hatboro'.
Muir, Edwin S.,	Philadelphia.
Oat, Charles F.,	West Chester.
Pearson, Leonard,	Ithaca, N. Y.
Raynor, Thomas,	Philadelphia.
Seitter, Joseph B.,	Philadelphia.
Turner, John P.,	West Chester.
Worrall, Frederick H.,	Media.
Zuill, Jeremiah P.,	Bermuda, W. I.

FIRST YEAR.

Agnew, Thomas,	Kennett Square.
Bartholomew, J. Cleaver,	Philadelphia.
Bickel, Samuel D.,	Philadelphia.

Digitized by Google

Bunting, Elwood B.,	Burlington, N. J.
Conard, Milton E.,	West Grove.
Conrow, Abraham E.,	Moorestown, N. J.
Edwards, Warren,	Philadelphia.
Embery, Frank,	Philadelphia.
Entrikin, Harry D.,	Kennett Square.
Faughnan, John C.	
Geary, Alfred W.,	Philadelphia.
Herbert, Charles O.,	Frankford.
Jefferis, Joseph R.,	Wilmington, Del.
Massinger, Eber M.,	Chalfont.
Moran, Francis A.,	Penllyn.
Pearson, John A.,	Rush Centre, Kansas.
Records, John H.,	Lewes, Del.
Schollenberger, Christian,	Philadelphia.
Senseman, B. Frank,	Mechanicsburg.
Sullivan, Denis O.,	Devon.
Thudichum, Carl Louis,	Philadelphia.
Wheeler, Arthur S.,	New Orleans, La.

SPECIAL STUDENT.

Hart, John R.,	Philadelphia.

STUDENTS.

Students of the Third Year,	11
Students of the Second Year,	24
Students of the First Year,	22
Special Student,	1
	58

This Department provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its courses extend from the first elements of Medicine, to the latest researches in Veterinary Science, at home and abroad. At every step the student is drilled under the personal guidance of Professors in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining, at every step, Theory and Practice. It is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology, problems which, owing to the lack of communication between the physician and his patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

The buildings are erected in what is to be the Botanical Garden

Digitized by Google

of the University. They have a street frontage of over 600 feet, and consist of a spacious Amphitheatre, Museum, Dissecting Room, Histological and Botanical Laboratory, Hospital, with hot and cold and steam baths for horses, Blacksmith Shop with eight forges, Pharmaceutical Laboratory, etc., etc. The floors are laid in cement, with the most approved drainage. The Hospital is capable of accommodating over fifty horses, dogs, or other animals.

ADMISSION.

Candidates who have received a college degree, or have passed the matriculate examination of a recognized college, or who have a certificate covering the required subjects from a recognized Normal or High School, or a duly organized County Medical Society that has instituted a preliminary examination—such as that adopted by the Medical Society of the State of Pennsylvania —may enter without examination.

Other candidates for admission are required: *First*, to write an essay (not exceeding a page of foolscap), which may serve as a test in orthography and grammar; *Second*, to pass an examination in Elementary physics (Part I, of Fownes's *Chemistry*).

Graduates of recognized Medical Schools, or of recognized Veterinary Schools which require three years attendance, may enter the second year without examination. Students who have attended one or more sessions in a recognized Veterinary or Medical School will be allowed credit for time, but must pass an examination upon entering.

INSTRUCTION.

The Course of Instruction extends over three years, with one session from the first of October until June in each year. The following are the studies:

THE FIRST YEAR:—*Chemistry, Materia Medica and Pharmacy, Physiology, Histology, Botany, Zoology, Veterinary Anatomy*, and *Forging*.

SECOND YEAR:—*Medical Chemistry, Physiology, Therapeutics, General Pathology and Morbid Anatomy, Veterinary Anatomy, Zoology, Surgical Pathology*, and *Internal Pathology and the Contagious Diseases*.

Digitized by Google

THIRD YEAR: — *Therapeutics, General Pathology and Morbid Anatomy, Surgical Pathology and Operative Surgery, Internal Pathology and the Contagious Diseases, Sanitary Police, Obstetrics,* and *Zootechnics.*

In the Second Year the student attends Clinics, and serves as aid in the Hospital; in the Third Year he is placed in charge of sick animals, and is required to prepare Clinical Reports and make Autopsies. He also makes regular visits to breeding and dairy farms and to slaughter-houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher meat. Second and Third Year students are required to do resident duty in the Hospital.

CHEMISTRY.

CHEMICAL LABORATORIES. — The working laboratories for Practical Chemistry are in a special laboratory building, and are under the supervision of the Professor of Chemistry and the Demonstrator, with Assistants. Students of the first year devote four hours each week to the study of General Chemistry. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance in Veterinary Medicine. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his work.

Students of the Second Year devote four hours per week to practical work in the laboratory. The Course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and from complex mixtures.

MATERIA MEDICA AND PHARMACY.

Materia Medica and Pharmacy are taught in a series of about sixty-four lectures and practical demonstrations by the Veteri-

Digitized by Google

nary Assistant of the Professor of Therapeutics. This course includes the study of all the drugs and preparations in the U. S. Pharmacopœia which are of use in Veterinary Medicine, with the addition of the other remedies, the use of which is adapted specially to any one class of animals studied in Veterinary Medicine (Herbivora or Carnivora). The student is required to handle the various drugs, in order to recognize their physical characteristics, to make the ordinary pharmaceutical preparations (infusions, tinctures, extracts, powders, balls, ointments and blisters), and is instructed practically in the manual required for the administration of remedies in powder, ball or fluid form to the Horse, Ox, Hog, and Carnivora.

During the Second Year details of two students each serve one week in rotation in the Pharmacy of the Hospital, preparing all prescriptions used in this department.

PHYSIOLOGY.

The course in Physiology consists of Lectures and Demonstrations in which the chemical and physical processes and constituents of the animal body are considered, and the different functions traced from their appearance in the lowest animal forms to their highest development in the domestic animals and man. Especial attention is given to the nutritive functions in the domestic animal, rules being given for the adjustment of diet to the work required of the animal, whether in beasts of burden, milk, or wool producers, or in animals destined for food purposes. The lectures are fully illustrated by experiments, diagrams, and tables. In connection with the course, the students are required to work in the Physiological Laboratory, where they study the chemical properties and general characteristics of the Food Stuffs, the Analysis of Milk, the Action of the Digestive Juices, etc.

A series of Review examinations are held by the Professor, to ensure the thorough comprehension by the students of the subject-matter of the Lectures.

The Physiological Laboratory is fitted with the most approved instruments for physiological research, and opportunity is offered to advanced students for conducting original research under the immediate supervision of the Professor.

Digitized by Google

BOTANY.

The Botanical instruction requires five hours a week during the whole of the first year.

Two objects are kept in view. The first is to give such a general idea of the anatomy and physiology of plants, of the principles of classification, and of the doctrines of evolution as are essential to every one claiming to have a scientific education. This should be gained by the course of forty lectures in which these subjects are carefully elucidated.

The second object is to train observers, as well as to teach the practical relations of Forage plants, "loco plants" and noxious weeds to the veterinary art. It cannot be too fully impressed upon the student in this department that, owing to the intimate relations between agriculture and veterinary medicine, his future prosperity and usefulness may be largely determined by his ability to recognize promptly plants which are known or supposed to be injurious to our domestic animals. The so-called "loco plants" are the cause each year of an immense loss to stock raisers of the United States. Then, too, there is much to be learned and taught as to the relative nutritive values of the forage plants of every region of the country. This the future Veterinarian must be prepared to do. Some grasses sold as forage can be shown to be absolutely injurious. These should be recognized. To meet this second object the student has, during the first term, four hours drill each week in observation and description of plants. During the second term he also has four hours each week devoted to analytical botany. The work then is done entirely in the laboratory, and to accomplish it, each student is provided with a dissecting microscope, for which he receipts, and for which he is responsible.

ZOOLOGY.

General Zoology and Comparative Anatomy embrace the study of the Animal Kingdom, the Organic Cell and its aggregates, a short account of the tissues and their production, Organs, their structure, Reproduction, general facts of Embryology, Metamorphosis, Alternation of Generation, Polymorphism and

Digitized by Google

Heterogeny, systems of Classification, the Evolution Theory, Species and Varieties, with a succinct account of the various groups of animals, their anatomy, development, and distribution.

Practical demonstrations are given of the characteristics of the organs in the various animal types, in order to prepare the student for original zoological research.

ANATOMY.

The instruction in Descriptive Anatomy extends over two entire sessions, and embraces the study of the Bones, Articulations, Muscles, Digestive tract, Respiratory apparatus, Urinogenital organs, organs of Circulation of the Blood and Lymph, Nervous System, organs of Special Sense, and Embryology of the Horse, the Mule, the Ass, the Ox, Sheep and Goat, Hog, Dog, Cat and Poultry. Constant dissection is required. The horse is used as the type until the parts have been thoroughly learned, and the student is then given other animals, to learn the differences which exist. During the First Year the dissections are made with special reference to the bones, articulations and muscles, while the Second Year is devoted to the blood-vessels and nerves. The dissections are under the supervision of the Professor of Anatomy, aided by a Veterinary Assistant. A detail is made each week of students of the Second Year, who dissect in the laboratory of the Professor of Anatomy, preparing the pieces to be used for his lectures.

The dissecting room is unsurpassed in convenience and cleanliness. The floors are of cement, the hot and cold water facilities are ample, and the room is thoroughly lighted during the day by windows on both sides, and at night by gas over each table. Iron wagons serve as dissecting tables, with movable posts, allowing the animals to be placed in any required position.

HISTOLOGY

Is taught in connection with the chair of Anatomy. The Laboratory is fitted with the most approved apparatus for Microscopic and Biological research. The anatomical elements are studied from the tissues of each of the classes of domestic animals

Digitized by Google

included in Veterinary Medicine, in order to allow the student to appreciate the minute differences of structure which have been the cause of such gross error in the work of Histologists, who have confined themselves to the tissue of a limited number of animals.

FORGING.

While the Veterinarian is not expected to be a Blacksmith, he should at least know the manual of a craft which he is constantly called upon to direct.

At eight forges the students are instructed twice a week, in sections of sixteen.

The student is required to forge the Horseshoe from the mould, and to prepare the horse's hoof, to remove the shoe, and to put it on. The shoeing is first learned on the dead hoof, then on the living hoof. Later, the practical work includes the forging of pathological and surgical shoes, with a course of lectures on Farriery and Pathological Shoeing.

THERAPEUTICS.

This course, extending over the two sessions of the Medical Department, is devoted specially to the physiological action of drugs.

GENERAL PATHOLOGY AND MORBID ANATOMY.

Instruction in General Pathology and Morbid Anatomy is given to the students of the Second and Third Years. It consists of Lectures: 1st, on General Pathological Anatomy, in which are treated the Degenerations, Atrophy, Hypertrophy, Inflammations, and Tumors; 2d, on Special Pathological Anatomy, in which is considered the morbid anatomy of each organ of the body. In addition to this the students of the Second Year are practically taught Pathological Histology in the Pathological Laboratory, while to the students of the Third Year are given weekly demonstrations in Microscopic Morbid Anatomy. For the latter purpose there are at hand a more than sufficient number of morbid specimens, both fresh and alcoholic.

In the final examinations the practical as well as the theoretical knowledge of the candidate is tested.

Digitized by Google

INTERNAL PATHOLOGY AND CONTAGIOUS DISEASES.

The instruction in the Theory and Practice of Medicine, completed in two years, is given under the following headings:

GENERAL PATHOLOGY.

1. Origin of Veterinary Medicine, Medical Doctrines, Classes of Disease.

2. ETIOLOGY.—Effects on the various domestic animals of Locality, Climate, Food, Water, Habitation, Work, Individual, Race, Sex and Hereditary Disposition, Temperament, Constitution, Exciting Causes, Poisons, Specific Causes, Medical Constitution, Idiosyncrasy and Immunity.

3. SYMPTOMATOLOGY aud SEMIOLOGY.

4. PHYSICAL DIAGNOSIS.—Percussion, Auscultation, Examination of Blood and Urine.

5. DIAGNOSIS.

6. PROGNOSIS.

7. AUTOPSIES.

SPECIAL PATHOLOGY.

DISEASES OF RESPIRATORY SYSTEM.

CONTAGIOUS AND ZYMOTIC DISEASES.—With the laws of Sanitary Police in force in various parts of the United States and in Europe.

DISEASES OF THE DIGESTIVE APPARATUS.

" " URINO-GENITAL APPARATUS.

" " NERVOUS SYSTEM.

" " CIRCULATORY SYSTEM.

" " EAR.

" " EYE.

" " SKIN.

PARASITIC DISEASES AND HELMINTHS.

SURGICAL PATHOLOGY.

This branch of Veterinary Science is taught by a Graded Course of Didactic Lectures, and by Clinical Instruction, extending over a period of two years, taking in the Second and Third Year Classes.

One year is devoted to Minor Surgery, and comprises a course of about one hundred lectures. The other year, given to the study of Major Surgery, comprises about ninety lectures.

In addition to this, the Second and Third Year classes are given two hours of Clinical Instruction daily, from 8 to 10 A.M.

Digitized by Google

The Hospital and free clinics furnish an abundance of material for practical instruction, which is one of the special features of our school. In no other school in America is this mode of instruction as thoroughly carried out as in this school.

The Senior class is required to devote one entire day of each week to Practical Operative Surgery, when the *modus operandi* of every operation likely to occur in Veterinary practice is taught.

Instruction in Bandaging and Dressing, and the proper manner of application is given in connection with Operative Surgery.

The lectures on Minor Surgery are comprised under the following headings:

SURGICAL DIAGNOSIS.

MODE OF SECURING ANIMALS—Horse, Ox, Dog, etc.
LIGATION OF ARTERIES.
CLOSURE OF WOUNDS, SUTURES, etc.
INFLAMMATION—Varieties and complications, Abscess, Suppuration, Mortification, Cicatrization.
WOUNDS—Incised, lacerated, bruised and punctured Wounds, Bites, Gunshot wounds, Summer wounds.
FRACTURES—Healing of Fractures, Incomplete Fracture, Special Fractures.
DISEASES OF BONE—Inflammation of Bone, Bone Tumors, Ring Bones, Side Bones, Splints, Spavin, Curb, Osteomalacia, Osteoporosis.
DISEASES OF SYNOVIAL MEMBRANES.
" " ARTICULATIONS.
" " TEETH.
" " TESTICLES AND THEIR ENVELOPES.
" " TENDONS.
" " MUSCULAR TISSUE.
DISLOCATIONS.
DISEASES OF VEINS—Thrombus, Phlebitis.
" " LYMPHATICS.
" " WITHERS, NECK, and POLL.
SPRAINS—Subcutaneous Emphysema.
PHYSIOLOGICAL HORSESHOEING.

CLASSIFICATION OF LECTURES ON MAJOR SURGERY.

DISEASES OF THE FOOT.—Anatomy, Physiology, Pathology.
CORNS, Fissures, Keraphyllocele, Keratocele, Pricking, Burnt Sole.
QUITTOR.—Cutaneous, Cartilaginous, Tendinous.

Digitized by Google

STREET NAIL, Acute Founder, Navicular Disease, Thrush, Gangrene, Necrosis, Caries, Purulent Infection.

HERNIA.—Acute, Chronic, Inguinal, Ventral, Evantration, Diaphragmatic, Umbilical.

TUMORS.—Lipoma, Encondroma, Osteoma, Odontoma, Lymphadenoma, Osteosarcoma, Carcinomas, Inflammation of the Sinus.

CASTRATION.—Normal, Cryptorcia, Female, Other Animals.

PATHOLOGICAL SHOEING.

OBSTETRICS.

A full course of instruction is given in this branch to Senior students, about fifty lectures being devoted to this subject. Practical instruction will be mainly confined to demonstrations on the manikin, although, whenever possible, cases of natural labor will be used, to the best advantage for the student.

The course of instruction is classified as follows:

OBSTETRICAL ANATOMY.—Anatomy of the hard and soft parts.

ORGANS OF GENERATION.—External—Internal, Reproduction, Fecundation, Changes and Development of the Embryo, Differences in Ruminants, Pig, Bitch, and Cat, Gestation, Pathology of Gestation, Diseases of Pregnant Animals, Accidents, Normal Parturition, Presentations, Dystokia, Maternal Fœtal, Diseases of the Fœtus, Monstrosities, Dystokia from Malpresentation, Obstetrical Operations, Accidents of Parturition, Diseases, and Abnormalities of the young animal.

ZOOTECHNICS AND HYGIENE

Include the study of the Origin and Domestication of animals employed for profit by man, the laws of Breeding and Production, Heredity, Race Characteristics, and Individual Impression, the effect of Climate, Aliment, Work, and the means to be employed in the Selection and Handling of Animals so as to derive from them the most economical benefit, whether as motors, as wool, or milk producers, or as articles of food.

MUSEUM.

The Museum of this department has grown rapidly since the organization of the Veterinary Department, both through the preparations made in the dissecting room, and through the

Digitized by Google

liberality of the Pennsylvania Veterinarians. Valuable and rare specimens are constantly added to it from the animals which die in the extensive Zoological Garden of the city. In addition to a large number of anatomical and pathological veterinary specimens, there have been added during the last year skeletons of the Elephant, Giraffe, Camel, Zebus, Tapir, Pecary, Antelope, etc.

HOSPITAL.

The Hospital offers the most extensive and complete accommodations for sick animals to be found in America.

Second and Third Year students are placed directly in charge of cases, are required to keep the Clinical Records and to administer the medicines, and are allowed, under the supervision of the Clinical Professors, to perform whatever operations regard for the safety of the animal permits. Details of one student from each class take "guard" duty for twenty-four hours in rotation, receive the animals which enter the hospital, give the required care at night, or when other students are absent, and perform the duties usually assigned to a "resident."

A detail from the Second Year class compounds all medicines used in the Hospital.

A large number of animals from the private practice of the Professors, as also from the Dispensary practice of the department, are treated at the clinic daily, from 8 to 10 A. M., giving abundant material for clinical lectures and practical instruction.

FARRIERY.

The student removes the shoes of the animals under his charge, examines the feet, and assists at the shoeing. In addition to shoeing for lameness, a large amount of ordinary shoeing is done at the forges of the Department, affording ample experience in methods demanded by different classes of horses, and by the various forms of the horse's foot.

EXAMINATIONS AND DEGREE.

Examinations are held at the close of each year. These the student must duly pass before he is allowed to proceed to the

Digitized by Google

studies of the next year. At the close of the course, and after passing a satisfactory examination, the student receives the degree of *Veterinariæ Medicinæ Doctor* (*V.M.D.*).

FEES.

Matriculation Fee (paid once only) five dollars. Tuition Fee, annually, one hundred dollars in advance; or, if division of payments is desired, sixty dollars before November 1st and fifty dollars before February 1st.

For further information, address,

RUSH SHIPPEN HUIDEKOPER, M.D.,
Dean of Veterinary Department,
University of Pennsylvania.

HOSPITAL:

Thirty-sixth and Pine Streets, Philadelphia.

The Hospital of the VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA is supplied with every possible facility for the best handling and care of sick animals of all kinds.

Animals are received into the Hospital at any time, DAY or NIGHT.

OUT-PATIENTS and OPERATIONS from 8 to 10 A.M.

The following Rates of Board, including Medicine and Surgical Shoeing, are charged:—

Horses and Mules, ...	per day,	$1.00
Donkeys and Dogs, ...	"	.50
Cattle, Sheep, Cats, Birds, and small pet animals, . .	"	.25

PROFESSIONAL CHARGES, according to the nature of the case.

Animals belonging to indigent and deserving persons are treated without charge, and, when taken into the Hospital, pay board only. The owners of these animals must be known to the Veterinary Surgeons, or to other responsible citizens of Philadelphia.

The animals are under the professional care of Dr. HUIDEKOPER and Dr. ZUILL, Veterinarians.

A competent Farrier is attached to the Hospital, who is prepared to do a LIMITED AMOUNT OF ORDINARY SHOEING in addition to SHOEING FOR LAMENESS; the LATTER ONLY under the direction of the Medical Staff.

Digitized by Google

CHARGES.

ORDINARY SHOEING.

Full Set of Shoes,	$3.50
Pair of Front Shoes,	2.50
Removal of Set of Shoes,	1.00

PATHOLOGICAL SHOEING.

Bar or Defy's Shoe (each),	$2.00

Other Shoes according to nature of work required.

The VETERINARY DEPARTMENT and HOSPITAL is open for inspection by visitors on Tuesday and Saturday afternoons, from two until five o'clock.

TEXT AND REFERENCE BOOKS.

FIRST YEAR.

Chemistry.—Fownes; Mutter's Analytical.

Materia Medica and Therapeutics.—H. C. Wood; Finlay Dun's Veterinary Medicine.

Anatomy.—Chauveau's Comparative.

Histology.—Klein.

Physiology.—Smith's Physiology of the Domesticated Animals.

Botany.—Bessey; Gray's Manual.

Zoology.—Nicholson's Manual.

Horse-shoeing.—Fleming.

SECOND YEAR.

General and Internal Pathology.—Robertson's Practice of Equine Medicine; William's Principles and Practice of Veterinary Medicine; Steele's Diseases of the Ox; Fleming, Manual of Veterinary Sanitary Science and Police; Steel, Canine Diseases.

Surgical Pathology.—Fleming's Operative Veterinary Surgery; Williams' Principles and Practice of Veterinary Surgery; Zundel on the Horse's Foot; Liautard, Lameness of Horses.

Medical Chemistry.—Greene; Tyson's Practical Examination of the Urine; Marshall and Smith's Chemical Examination of the Urine.

THIRD YEAR.

Obstetrics.—Fleming.

The Journal of Comparative Medicine and Surgery.
The American Veterinary Review.

Digitized by Google

ROSTER, 1888-89.—FIRST YEAR.

Hour.	*Sunday.*	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8 A.M.					Roll Call.	Roll Call.	Roll Call.
9 A.M.		Chemistry.	Chemistry.	Practical Chemistry. 2 hours.	Farriery and Dissections.	Farriery and Dissections.	Farriery and Dissections.
10 A.M.		Roll Call.	Practical Chemistry. 2 hours.				Physiology.
11 A.M.		Farriery and Dissections.		Dissections.			
12 M.			Physiology.		Physiology.		
1½ P.M.				Zoology.			
2 P.M.		Roll Call.	Practical Botany.		Botany.	Roll Call.	
3 P.M.		Dissections.		Practical Pharmacy.	Practical Botany.	Dissections.	
3½ P.M.		Materia Medica.					
4 P.M.							
4½ P.M.		Anatomy.		Anatomy.		Anatomy.	
5 P.M.							
7 to 9½		Roll Call. Repetition. Anatomy Dissections.	Roll Call. Dissections.	Roll Call. Dissections.	Roll Call. Dissections.	Roll Call. Repetition. Anatomy Dissections.	

Digitized by Google

ROSTER, 1888-89.—SECOND YEAR.

Hour.	*Sunday.*	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8 A.M.		Clinic.	Clinic.	Clinic.	Clinic.	Clinic.	Clinic.
9 A.M.					Medical Chemistry.	Chemical Laboratory. 2 hours.	Chemical Laboratory 2 hours.
10 A.M.	Hospital Visit.	Surgical Pathology.	General Pathology.	Surgical Pathology.	Surgical Pathology.		
11 A.M.		Internal Pathology.	Repetition. Int. Pathology	Internal Pathology.	Internal Pathology.	Roll Call.	Physiology.
12 M.		Thesis.	Physiology.		Physiology.		
1½ P.M.				Zoology.		Dissections.	
2 P.M.		Roll Call.	Roll Call.	Roll Call.	Roll Call.	Roll Call.	
3 P.M.		Dissections.					
3½ P.M.		Morbid Anatomy.	Dissections.	Dissections.	Dissections.	Dissections.	Morbid Anatomy.
4½ P.M.		Anatomy.	Repetition. Therapeutics.	Anatomy.	Therapeutics.	Anatomy.	Therapeutics.
5 P.M.		Hospital Visit.	Hospital Visit.	Hospital Visit.	Hospital Visit.	Hospital Visit.	Hospital Visit.
7 to 9½		Roll Call. Repetition. Anatomy Dissection.	Roll Call. Dissections.	Roll Call. Dissections.	Roll Call. Dissections.	Roll Call. Repetition. Anatomy Dissections.	

Digitized by Google

ROSTER, 1888-89.—THIRD YEAR.

Hour.	*Sunday.*	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8 A.M.		Clinic.	Clinic.	Clinic.	Clinic.	Clinic.	
9 A.M.	Hospital Visit.					Bacteriology.	
10 A.M.		Surgical Pathology.	Morbid Anatomy.	Surgical Pathology.	Surgical Pathology.	Zootechnics.	Obstetrics.
11 A.M.		Internal Pathology.	Repetition. Internal Pathology.	Internal Pathology.	Internal Pathology.	Repetition. Internal Pathology.	
12 M.		Thesis.					
2 P.M.		Roll Call. Pathological Farriery.	Roll Call.	Roll Call.	Roll Call.	Roll Call.	
3½ P.M.		Morbid Anatomy.	Foot Operations.	Foot Operations.	Surgical Anatomy.	Surgical Anatomy.	Morbid Anatomy.
4 P.M.							
4½ P.M.			Repetition. Therapeutics.	Repetition. Surgical Pathology.	Therapeutics.	Repetition. Surgical Pathology.	Therapeutics.
5 P.M.		Hospital Visit.	Hospital Visit.	Hospital Visit.	Hospital Visit.	Hospital Visit.	

Digitized by Google

DEPARTMENT OF BIOLOGY.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.
JOSEPH LEIDY, M.D., LL.D., Professor of Zoölogy and Comparative Anatomy, DIRECTOR.
JOSEPH T. ROTHROCK, B.S., M.D., Professor of Botany.
HORACE JAYNE, M.D., Professor of Vertebrate Morphology, SECRETARY.
JOHN A. RYDER, PH.D., Professor of Comparative Embryology.
WILLIAM P. WILSON, Sc.D., Professor of Anatomy and Physiology of Plants.
CHARLES S. DOLLEY, M.D., Professor of General Biology.

HOBART A. HARE, M.D., Instructor in Physiology.
EDWIN A. KELLEY, Instructor in Zoölogy.

EMILY L. GREGORY, PH.D., Fellow in Biology.

MILTON J. GREENMAN, Assistant Instructor in General Biology.
CHARLES M. BURK, Assistant Instructor in Zoölogy.
EDWARD BANCROFT, Assistant to the Professor of Comparative Embryology.
GEORGE FETTEROLF, A.B.,
JESSE M. GREENMAN,
ROBERT S. MAISON, A.B., } Assistants in Botany.

MATRICULATES, 1888–1889.

SECOND YEAR.

Rodman Barker,	Wyncote.
Samuel H. Barker,	Wyncote.
Jessie L. Colson,	Daretown, N. J.
Alexander H. Davisson,	Philadelphia.
John H. Girvin,	Philadelphia.
James E. Ives,	Philadelphia.
Henry S. Kiersted,	Philadelphia.
Thomas M. Lightfoot,	Germantown.
William T. Marshall,	Milwaukee, Wis.

Digitized by Google

George W. McCaffery,	Philadelphia.
Howard Mellor,	Philadelphia.
George D. Morton,	Philadelphia.
Frank R. Packard,	Philadelphia.
Addison M. Rothrock,	West Chester.
William T. Stewart,	Philadelphia.
Archibald G. Thomson,	Philadelphia.

FIRST YEAR.

David J. Bullock,	Philadelphia.
Josiah T. Bunting,	Glen Mills.
Martha Bunting,	Philadelphia.
Philip P. Calvert,	Philadelphia.
Kathleen Carter,	Philadelphia.
Jacob R. Esterly,	Reading.
Joseph C. Ferguson, Jr.,	Philadelphia.
John M. Fogg,	Philadelphia.
Clarence P. Franklin,	Philadelphia.
Clarence J. Garitee,	Philadelphia.
William T. Gillespie,	Principio, Md.
Ida Goepp,	Philadelphia.
Jesse M. Greenman,	Cleveland, Ohio.
John Harshberger,	Philadelphia.
John H. Jopson,	Philadelphia.
Thomas S. Kelly,	Weldon.
Caspar W. Miller,	Media.
J. Percy Moore,	Philadelphia.
William R. Nicholson,	Philadelphia.
Frank H. Widman,	Philadelphia.
George W. Wood,	Philadelphia.

Total, 37.

The aim of this Department is:

1. To provide a course of instruction in Biology for students of both sexes who are preparing to study medicine, or who desire systematic training in this subject.

2. To conduct the Biological studies of students in the College Department.

3. To afford advanced instruction to graduates who are candidates for the Degree of Doctor of Philosophy.

4. To encourage original research in Biology by offering facilities to scientists engaged in investigation, and by giving aid and instruction to advanced students prosecuting special work.

The new LABORATORY building, erected for the use of this Department, contains a lecture-room, four large laboratories for undergraduate Biological work, rooms for the Zoölogical and

Digitized by Google

Botanical collections and libraries, laboratories for advanced and special work in Botany, Zoölogy, Histology, Embryology and Physiology, besides private laboratories for the use of the instructors, and rooms for Photography, with ample space for the Aquaria, Animals and storage.

Proper and abundant MATERIAL is furnished to students engaged in special work. A supply of the ordinary forms used in the practical laboratory exercises is kept, as far as possible, in the building and greenhouse.

An excellent COLLECTION of skeletons, typical forms, and dissected preparations is formed, and a fine Herbarium, containing about forty-five thousand specimens, is deposited in the building.

A good working LIBRARY, containing important Text-books and complete sets of many valuable Journals, has been provided. The large public libraries of the city are, under regulations, open to students. The Academy of Natural Sciences, with its rich museum and large library, the most complete in Biology in the country, is accessible to students without charge.

1. GENERAL COURSE IN BIOLOGY.

This course forms an important branch of modern general culture, and also furnishes a peculiarly appropriate and valuable preparation for the study of medicine. With it may be combined, without extra charge, such studies in the College Department (the Languages, Chemistry, Physics, Mathematics, Drawing, etc.) as the student, with the advice of the Secretary of the Biological Faculty, may select. A liberal course of study may be thus arranged to suit individual requirements.

The course extends through two years of two terms each, and is constituted as follows:—

FIRST YEAR.

GENERAL BIOLOGY.—1. Lectures on the General Principles of Biology. Systematic Zoölogy. [Dr. Leidy. 1*]
2. Laboratory Course. [Dr. Dolley and Mr. Greenman. 8]

MAMMALIAN ANATOMY.—1. Lectures on Descriptive Anatomy. [Dr. Jayne. 2]
2. Laboratory Course (dissection). Mivart's *The Cat.* [Dr. Jayne and Mr. Burk. 8]

* The numerals indicate number of hours of *instruction* each week.

Digitized by Google

BOTANY.—1. Structural and Systematic Botany. (Lectures.) [Dr. Rothrock. 1]

2. Structural Botany. Laboratory Course. Gray's *Text-book*. First term only. [Dr. Wilson. 4]

3. Analytical Botany. Laboratory Course. Gray's *Manual*. Second term only. [Dr. Rothrock. 4]

SECOND YEAR.

SYSTEMATIC ZOÖLOGY.—The structure, classification and distribution of animals. (Lectures.) [Dr. Leidy. 1]

ANIMAL MORPHOLOGY.—Advanced laboratory course. [Dr. Jayne. 4]

HISTOLOGY.—Lectures and Laboratory exercises on Microscopic Anatomy. Schäfer's *Essentials of Histology*. First term only. [Dr. Ryder. 8]

EMBRYOLOGY.—Lectures and Laboratory exercises on the development of the chick and rabbit. Foster and Balfour's *Elementary Embryology*. Second term only. [Dr. Ryder. 8].

PHYSIOLOGY.—The elements of Mammalian Physiology. (Lectures and demonstrations.) [Dr. Hare. 2]

BOTANY.—1. Advanced Structural Botany. (Lectures and Practical exercises.) First term only. [Dr. Wilson. 6]

2. (*a*) Economic Botany. (Practical exercises.) First term only. [Dr. Rothrock. 6]; or, (*b*) Physiological Botany. (Practical exercises.) Second term only. [Dr. Wilson. 6]

The instruction in General Biology is in the form of lectures accompanied by practical laboratory exercises, and comprises the study of the structure, functions and development of a series of plants and animals. The student in this manner gains a general knowledge of the vital phenomena manifested in the different forms of living matter, before beginning the special study of either Botany or Zoölogy. The series studied are: (1) Amoeba, Paramæcium, Vorticella, Bacterium, Yeast-plant and Protococcus, as unicellular forms of life; (2) Moulds, Chara, Braken-fern and Bean-plant, as exhibiting the structure and activities of Plants; (3) These compared with Sponge, Hydra, Starfish, Earthworm, Leech, Cyclops, Crayfish, Grasshopper, Clam, and Squid, as Animals.

The courses in Mammalian Anatomy consist of lectures and practical work. The lectures include a detailed description of the anatomy of one of the higher mammals, and comparisons with human anatomy, and are well illustrated by prepara-

Digitized by Google

tions, models, diagrams, etc. The laboratory course embraces the careful dissection of the Cat.

The work in Botany, during the *First Year*, consists in the study of the macroscopic structure of Plants, followed by practical exercises in determining a selected series of forms.

In the first term of the second year the entire class studies the microscopic structure of tissues and organs. In the second term an election is allowed between Economic Botany and Physiological Botany. The work in the first course consists of practical exercises in Forestry, adulteration of foods and drugs, medicinal plants, etc.; in the second course the life processes of plants are carefully followed.

The lectures on Systematic Zoölogy begin in the first year and continue through the second. They embrace the structure, classification and distribution of Animals, one year being devoted to the study of the Invertebrates, the next to the Vertebrates.

The laboratory course in Animal Morphology consists in the dissection of additional types, of series of organs, or special parts chosen by the instructor.

Histology is taught, during the first term in the second year, mainly by practical work with the microscope. The structure of animal tissues and organs, and the methods of examining and preparing microscopic specimens, are thoroughly studied.

Embryology is taught in the second term, and the student is instructed in the processes by which the complex tissues and organs are built up from the simple egg. The instruction consists in lectures on the Principles of Embryology, with laboratory exercises in the preparation and study of the principal stages of development of the Chick and Rabbit.

The instruction in the elements of Human and Comparative Physiology embraces the study of the phenomena of nutrition, of food-stuffs and digestion; circulation; respiration; reproduction; muscular action, including locomotion, speech, etc.; and the functional activity of nerve and brain.

2. COURSE FOR STUDENTS IN THE COLLEGE DEPARTMENT.

Instruction in Biology forms a part of several courses in the

Digitized by Google

College Department. For details of these courses, conditions of admission, examinations and degrees, see pp. 26–70.

3. INSTRUCTION FOR GRADUATE STUDENTS.

Students in the Department of Philosophy, who have selected Botany or Zoölogy as the main subject in their course for the Degree of Doctor of Philosophy, and who have had the requisite training, will, on entering, begin original investigation for the required graduation thesis. If not sufficiently prepared for this work, or if Botany or Zoölogy, or both, have been selected as subordinate studies, the students are advised to take the General Course in Biology, or such portions of it as may be deemed necessary. The conditions of entrance, fees, examinations and degrees are set forth in the General Catalogue, under Department of Philosophy.

4. INVESTIGATION AND ADVANCED INSTRUCTION.

Scientists engaged in the investigation of any subject in Biology can be accommodated in the laboratory by permission of the Faculty. A moderate fee will be charged for the use of the rooms and apparatus, and for attendance. Instruction of advanced students and of those engaged in special work is given by special lectures and by laboratory exercises under the personal direction of the professors. Meetings of the instructors and advanced students are held weekly for the discussion of recent discoveries in the various branches of Biology.

PRIZES.

Two Prizes, one of twenty-five dollars and one of fifteen dollars, will be awarded to students of either year for the best dissected preparations illustrating the anatomy of any type studied.

FEES.

All students pay, on entering, a matriculation fee of five dollars, and deposit each year ten dollars to cover breakage in the laboratories. Any balance remaining is returned.

The Fee for tuition in the full course is one hundred and fifty

Digitized by Google

dollars a year, payable in two instalments, on October 1st and February 1st. The fees for partial courses, payable in advance, are as follows: For each course of lectures fifteen dollars, for the courses in General Biology and Mammalian Anatomy, seventy-five dollars each, for the courses in Systematic Botany, Medical Botany, Vegetal Morphology, Vegetal Physiology, Animal Morphology, Histology and Embryology, thirty dollars each.

A fee of ten dollars is charged to each student receiving a certificate on completion of the full course.

There are no extra charges for material used in the practical classes, or for the use of instruments or reagents.

ADMISSION, EXAMINATIONS AND DEGREES.

The next session will begin September 23d, 1889, at 10 A.M.

Candidates for admission to the general course must show that they are able to profit by the instruction.

Students who do not desire to pursue the full course, and who are properly qualified, may take either a special or a partial course in any subject or subjects taught in the Department.

Examinations are held at the close of each college year. The student who has completed the full course in Biology, and has passed satisfactory examinations, is granted a Certificate which admits him to the Medical Department without examination, and enables him to pursue a Medical Course somewhat different from that laid down in the Catalogue, since he may pass his examinations in Anatomy and Physiology at the end of his first year, and if he has united the study of Chemistry with his Biological Course and passed satisfactory examinations, he may omit the General Chemistry of the first year and take up Medical Chemistry and pass at the end of the year. He may also omit the Biological and Histological work of the first year.

No degrees are given solely for study in this Department; but Biological students in the Department of Philosophy receive the degree of Ph.D., subject to the conditions imposed by that Department.

For further information respecting this Department, address Dr. Horace Jayne, Secretary of the Faculty, Biological Laboratory, Pine and 37th Sts., Philadelphia.

Digitized by Google

DEPARTMENT OF LAW.

FACULTY.

WILLIAM PEPPER, M.D., LL.D., PROVOST, and *ex-officio* President.

C. STUART PATTERSON, A.M., DEAN OF THE FACULTY, and Professor of the *Law of Real Estate* and *Conveyancing*.

HON. J. I. CLARK HARE, LL.D., Professor of the *Institutes of Law*, including, inter alia, *International*, *Constitutional*, and *Commercial Law*.

JAMES PARSONS, A.M., Professor of the Law of *Personal Relations* and *Personal Property*.

GEORGE TUCKER BISPHAM, A.M., Professor of *Equity Jurisprudence*.

A. SYDNEY BIDDLE, A.M., Professor of *Practice*, *Pleading*, and *Evidence at Law*, and *Criminal Law*.

MATRICULATES.

SENIOR CLASS.

Francis Cope Adler, A.B. (C.H.S.),	Philadelphia,	J. Henry Williams.
William Harrison Allen,	Warren,	Page, Allinson & Penrose.
David Werner Amram, A.B. (Univ. Penn.),	Philadelphia,	C. Stuart Patterson.
Forrest Murrell Anderson, Ph.B. (Univ. Penn.),	do.	J. Sergeant Price.
Arthur Straus Arnold,	do.	Mayer Sulzberger.
George Wellington Beale,	Scranton,	John Scollay.
Stacey Barcroft Beebe,	Coshocton, Ohio,	Biddle & Ward.
George Hinson Berkheiser,	Philadelphia,	Wm. S. Lane.
Irving Webster Bierer,	do.	W. S. Stenger.
Meylert Bruner,	Muncy,	University.
Walter Eveland Buckley,	Philadelphia,	University.
William Michael Byrne, A.B. (Georgetown College),	Wilmington, Del.,	Bradford & Vandegrift.
Malcolm Graeme Campbell,	Philadelphia,	Edw. S. Campbell.
Horace Lincoln Cheyney,	Cheyney,	University.
Edward Joseph Coll, A.B. (C.H.S.),	Philadelphia,	Jas. H. Heverin.
William Elliot Dudley,	Frankford,	H. E. Garsed.
Horace Durbin,	Lykens,	J. C. Durbin.
William Embery,	Philadelphia,	H. E. Garsed.
Charles Black Evans, A.B. (Delaware College),	Newark, Del.,	Geo. Gray.

Digitized by Google

Joseph Rosenbaum Fahy,	Philadelphia,	Thos. A. Fahy.
Jay Gates,	Germantown,	Morgan & Lewis.
Nathan Clarence Horton,	Hunts Mills, N. J.,	A. W. Horton.
Thomas Paull Howell,	Philadelphia,	N. DuBois Miller.
Solomon Stanger Iszard, A.B. (Princeton),	Glassborough, N.J.	C. Stuart Patterson.
Francis Fisher Kane, A.B. (Princeton),	Philadelphia,	MacVeagh & Bispham.
Samuel Carman Kintzing,	Huntingdon Val.,	University.
Frederick Jacob Knaus, Ph.G. (Phila. Coll. Pharmacy),	Philadelphia,	University.
Irvin Poley Knipe, A.B. (Univ. Penn.),	Norristown,	Irving P. Wanger.
Alexander Durbin Lauer,	Philadelphia,	Jas. S. Williams.
David Lavis,	do.	Wm. F. Harrity.
Francis Scoffin Laws,	do.	Francis S. Cantrell.
Joseph Siegmund Levin, A.B. (Univ. Penn.),	do.	Sam'l B. Huey.
James Henry Lloyd,	do.	MacVeagh & Bispham.
Edward Fell Lukens,	do.	John C. Grady.
Hew Brydon MacLean, Ph.B. (Univ. Penn.),	do.	Jones, Carson & Phillips.
Frank Kellar McCance, A.B. (Princeton),	Pittsburg,	C. Stuart Patterson.
Henry Aloysius McCarthy,	Philadelphia,	Lister, Keene & Barlow.
Christopher Magee, Jr., A.B. (Univ. Penn.),	Pittsburg,	Crawford & Dallas.
William Morgan Montgomery,	Philadelphia,	E. Clinton Rhoads.
Joseph Edward Murray,	do.	Biddle & Ward.
Harvey Klapp Newitt, Jr.,	do.	Frank L. Lyle.
George Wharton Pepper, A.B. (Univ. Penn.),	do.	Biddle & Ward.
Joseph Snowdon Rhoads,	Marple,	Wm. Knight Shryock.
Frank Brown Rhodes,	Media,	Howard & Smedley.
Alexander Harvey Scott, A.B. (Haverford),	Philadelphia,	MacVeagh & Bispham.
Edwin Jaquett Sellers, A.B. (Univ. Penn.),	do.	David W. Sellers.
Jacob Martin Shindel,	Washington, D.C.,	Benj. Harris Brewster.
Frederick Joseph Shoyer,	Camden, N. J.	Jno. S. McKinlay.
John Wesley Simmons, C.E. (P.M.A.),	Philadelphia,	Pattison & Stenger.
John William Speckman,	do.	Martin H. Stutzbach.
David James Thompson,	do.	University.
Henry Wiener, Jr., A.B. (C.H.S.),	do.	Biddle & Ward.
William Wood Wooters,	do.	Furth & Singer.
Samuel Megargee Wright, A.B. (Univ. Penn.),	do.	David W. Sellers.
Irving Elmer Ziegler,	do.	F. Carroll Brewster.

Digitized by Google

JUNIOR CLASS.

Lucien Hugh Alexander,	Philadelphia,	Wm. Henry Rawle.
Frazer Ashhurst,	do.	R. L. Ashhurst.
Charles Edward Aull,	do.	C. Stuart Patterson.
Boyd Cummings Barrington,	do.	Aubrey H. Smith.
Harry Woodward Bass, A.B. (Lincoln Univ.),	do.	University.
Henry Birck, A.B. (C. H. S.),	do.	Daniel Doughterty and D. Webster Dougherty.
Cortlandt Kimball Bolles,	New York,	University.
Richard Henry Bayard Bowie, A.B. (Univ. Penn.),	Philadelphia,	Richard L. Ashhurst.
Lin Light Bowman,	Palmyra, N. J.,	University.
Sumner Sallade Bowman,	Millersburg,	Simon S. Bowman.
Joseph Hill Brinton, Jr.,	Oakburne,	A. Lewis Smith.
Charles Lincoln Brown,	Philadelphia,	University.
William Alexander Brown,	do.	C. Stuart Patterson.
Harry Putnam Bush,	Bellefonte,	Edward D. Wadsworth.
Robert Jonathan Byron,	Philadelphia,	Henry C. Terry.
William Goldson Calver,	do.	Frank M. Cody.
Walter Sellers Cash,	do.	University.
Francis Chapman,	do.	S. Spencer Chapman.
Edwin Rouse Cochran, Jr.,	Middletown, Del.,	Bradford & Vandegrift.
Porter Farquharson Cope,	Philadelphia,	University.
Samuel Singer Craig,	Shippensburg,	J. A. C. McCune.
William Henry Dillingham, A.B. (Univ. Penn.),	West Chester,	Francis T. Chambers.
Russell Duane, A.B. (Harvard),	Philadelphia,	Biddle & Ward.
Joseph William Fitzpatrick,	do.	Thos. F. McMahon.
Parker Freeman, John Oscar Genther,	do.	John H. Sloan.
Thomas Reynolds Graham,	Kenton, Del.,	J. Alexander Simpson, Jr.
Charles Shiel Greene,	Philadelphia,	C. Stuart Patterson.
Jay Rich Grier,	do.	Biddle & Ward and J. R. Grier.
James Alden Guest,	do.	University.
Casper Wister Hacker,	Germantown,	University.
William Bartine Haffelfinger,	Philadelphia,	A. U. Bannard.
Alfred Roland Haig,	do.	A. A. Outerbridge.
Richard Wister Harvey,	do.	C. Stuart Patterson.
Robert Priestley Hayes,	do.	Edw. A. Anderson.
Robert Anderson Heberling, Ph.B. (Dickinson),	Mauch Chunk,	C. W. McKeehan.
Crawford Dawes Hening, A.B. (Univ. Penn.),	Philadelphia,	Charles Biddle.
Max. Herzberg,	do.	Biddle & Ward.
William Allison Hewlett,	Petersburg, Va.,	University.
Harry Cyril Holcomb,	Portville, N. Y.,	University.
Tatlow Jackson, Jr.,	Germantown,	W. Heyward Drayton.
Leonard Llewellyn Jewell,	Omaha, Neb.,	University.

Digitized by Google

Isaac Edward Johnson,	Media,	Johnson & Baker.
William George Keir,	Atlantic City, N. J.,	Theodore Matthews.
Thaddeus Stevens Krause, B.S. (Ursinus Coll.),	Plumsteadville, N.J.,	J. Q. Hunsicker.
Joseph Granville Leach,	Philadelphia,	J. Granville Leach,
Oscar Leser, A.B. (C.H.S.),	do.	MacVeagh & Bispham.
Charles Murheid List,	do.	Francis S. Cantrell.
William Wilson Longstreth, A.B. (Univ. Penn.),	do.	John G. Johnson.
Harry MacMillan, Jr.,	do.	P. F. Rothermel, Jr.
Percy McGeorge, B. S., E.M. (Univ. Penn.),	Merion,	Wm. McGeorge, Jr.
James Magee,	Philadelphia,	Edw. Schlegelmilch.
William Sands Messemer,	do.	Jno. S. McKinlay.
Sidney Roby Miner, A.B. (Harvard),	Wilkes-Barre,	Henry M. Hoyt.
Michael Joseph Morley, A.B. (Mt. St. Mary's),	Philadelphia,	University.
Philip Daniel Neukumet,	do.	Thos. A. Fahy.
James Hall Oliver,	do.	Henry K. Fox.
George Stuart Patterson,	Chestnut Hill,	C. Stuart Patterson.
James Lee Patton, A.B. (C.H.S.),	Philadelphia,	S. B. Huey.
Frederick Morgan Pile,	do.	Jos. M. Pile.
William Cozens Price, A.B. (Princeton),	Cape May City, N.J.,	Thos. D. Finletter.
Granville Penn Quin,	Philadelphia,	Biddle & Ward.
John Tiers Reardon,	do.	Jno. R. Read.
Charles Edward Rennyson,	Norristown,	Dwight M. Lowrey.
Everett Anderson Schofield,	Roxborough,	Albert R. Schofield.
Louis Frank Schuck,	Philadelphia,	Jules E. Pereyra.
David Emanuel Simon, A.B. (C.H.S.), Ph.B. (Univ. Penn.),	do.	Leon H. Folz.
Henry Naglee Smaltz, A.B. (Univ. Penn.),	do.	MacVeagh & Bispham.
Howard Wayne Smith,	do.	E. Cooper Shapley.
John Michael Snyder,	do.	John F. Lewis.
Edgar Ward Stark,	Pittston,	Sam'l B. Price.
Edward Stern,	Philadelphia,	University.
George Washington Holstein Thomas,	Bridgeport,	Henry M. Dechert.
Charles Cooper Townsend, A.B. (Univ. Penn.),	Overbrook,	Jos. B. Townsend.
William Jay Turner,	Germantown,	University.
William Hooker VanHorn, A.B. (C.H.S.),	Philadelphia,	Chas. F. VanHorn,
Elwood Wagonhurst, A.B. (Princeton),	do.	University.
Henry Nathan Wessel,	NebraskaCity, Neb.	C. Stuart Patterson.
Elias Henley White, A.B. (Haverford),	Philadelphia,	Biddle & Ward.

Digitized by Google

Charles Percy Willcox, Ph.B. (Yale),	Philadelphia,	Jones, Carson & Phillips.
Wayne Weachter Wilson,	Lebanon,	MacVeagh & Bispham.
Arthur Dix Windsor,	Titusville,	University.
Charles Sturgis Wood, A.B. (C.H.S.), Ph.B. (Univ. Penn.),	Philadelphia,	Alfred Frank Custis.
Norton Buel Young, Ph.B. (Univ. Penn.),	Chestnut Hill,	Geo. Junkin.

SPECIAL STUDENTS.

John Allen,	Philadelphia,	
P. P. Calvert,	do.	Graham Calvert.
Edward Riou Coleman,	Lebanon,	Henry A. Smith.
Thomas Rotherham Murrow,	Philadelphia,	
James Brooks Sawyer	Pittsburgh,	Biddle & Ward.

RECAPITULATION.

Seniors	55
Juniors	84
Special Students	5
Total	144

With the session of 1889–90 the Law Department begins a new departure. The University has leased the sixth floor of the building of the Girard Life Insurance, Annuity and Trust Company, at Broad and Chestnut Streets, Philadelphia; and in that building, on and after 1st October, 1889, will be located the lecture rooms and library of the Law Department, and the offices of the Dean. The students of the Department will also have the use of a complete working library of more than five thousand volumes, including every regular English and American report, which has been presented to the University by the family of George Biddle, Esq., as a memorial of that distinguished lawyer. The scope of instruction in the Department has also been enlarged by the extension of the course to three years.

ADMISSION.

The statutes of the University require that students, as a prerequisite to continuance in the first year's class of the Law Department, shall produce to the Faculty of that Department on or before the 1st of January in each year:

Digitized by Google

(1.) A satisfactory college diploma as Bachelor of Arts, *or*

(2.) A certificate of preliminary examination as required by the Rules of the Courts of Common Pleas of Philadelphia, *or*

(3.) A certificate from a committee of the Law Faculty that the student has passed a satisfactory examination upon the subjects of grammar, arithmetic, English history, American history, spelling, etymology and geography.

ADVANCED STANDING.

Admission to the second year's class will be allowed upon passing a satisfactory examination on the subjects of instruction in the first year.

SPECIAL STUDENTS.

Those persons who are not candidates for a degree may enter the Department as special students at any time. Each professor will issue tickets for his own lectures to such students, and he will fix the fee in his discretion.

COURSE OF INSTRUCTION.

FIRST YEAR.

PROFESSOR	HARE	. . . . Contracts.
"	PARSONS	. . Domestic Relations, Decedents' Estates.
"	BISPHAM	. . . Elementary Equity.
"	PATTERSON	. . Real Estate.
"	BIDDLE	. . . . Pleading, Criminal Law.

SECOND YEAR.

PROFESSOR	HARE	. . . . Insurance, Suretyship, and Guaranty.
"	PARSONS	. . . Agency and Partnership.
"	BISPHAM	. . . Equity Jurisprudence.
"	PATTERSON	. . Real Estate.
"	BIDDLE	. . . . Evidence.

THIRD YEAR.

PROFESSOR	HARE	. . . . Conflict of Laws, Constitutional Law.
"	PARSONS	. . . Bailment, Corporations.
"	BISPHAM	. . . Pleading and Practice in Equity.
"	PATTERSON	. . Real Estate and Conveyancing.
"	BIDDLE	. . . . Practice.

Digitized by Google

The instruction is given by lectures and by frequent examinations, and the students are required to read leading cases illustrating the subjects of instruction.

Moot courts are held, at which questions prepared by the professors are argued. These courts meet once a week during the term, and an evening is assigned to each case, so that a continuous discussion can be had of the points raised for argument. The Law Academy of Philadelphia, an institution of long standing, to which not only students, but many practicing lawyers belong, also gives opportunity for debate and argument that has been found of the greatest practical advantage.

The Supreme Court of Pennsylvania, the County Courts, and the Federal Courts are in session in Philadelphia during a great part of the year, so that students can have ample facilities for observing judicial proceedings.

The students of this Department are also permitted to attend free of charge the lectures given in other Departments of the University. Many of these lectures, especially those upon English History, and Literature, Political Economy, Rhetoric, Intellectual and Moral Philosophy, and Social Science, are of value to the lawyer, and an opportunity is thus afforded to those whose scholastic training has been limited. The students of this Department have also the free use of the General Library of the University.

DEGREES.

Under the statutes of the University, the Degree of Bachelor of Laws is granted to candidates who, having attended upon the full course of instruction in the Law Department, and having prepared and submitted to the Faculty an essay composed by the candidate on some legal subject, sufficient in merit to satisfy the Faculty of his fitness to receive the Degree, shall have passed satisfactory examinations upon the subjects of instruction.

The degree of Bachelor of Laws *cum honore* will be granted to such candidates of the Law Department as shall be certified by the Faculty to have passed the final examination with distinction.

The degree of Master of Laws is granted in the post-graduate course in Law.

Digitized by Google

ESSAYS.

The essay required of each candidate must be handed to the Secretary of the Faculty on or before the 31st of December, in the senior year. It must be printed or type-written on sheets not larger than octavo size, with a clear margin of at least one inch.

Essays must not disclose the name of the author, and must be accompanied by a sealed envelope indorsed with a distinguishing motto and containing the name of the author.

EXAMINATIONS.

The examinations required by the statute are both written and oral, and are held during the last weeks in May.

The questions of the written examination of 1888 are hereto appended:

Professor Hare.

1. What were the essentials to the validity of a stipulation?

2. Contrast the mandate of the Roman law with agency, and state how far the contracts of the mandatory were binding on the mandant.

3. State the use and operation of written instrument under the Roman law of contracts, and how far they were conclusive.

4. Give some account of the growth of the action of *assumpsit*.

5. What is requisite to the consideration of a promise, and from whom must it move?

6. Can a promise in consideration of a mutual promise, or of performance, be retracted before the act is done or promise made, notwithstanding a stipulation to the contrary?

7. What is essential to the passage of the title by a contract of sale under the Roman, the English and the French law?

8. Does the rejection of goods answering to the terms of an executory contract of sale render the purchaser answerable for the price, or only for damages?

9. Does the breach of a warranty entitle the purchaser to return the goods, and what is the measure of damages?

10. State the nature and effect of a sale by sample.

Digitized by Google

PROFESSOR PARSONS.

(State in reply to each question the reason for your answer.)

1. What provisions of the United States Constitution prevent State Legislatures from revoking the grant of charter privileges?

2. How did the stock of a corporation become subject to levy for the satisfaction of the stockholder's debt to a third person?

3. What is the answer to the argument for the recognition of a *de facto* corporation, based on the analogy of *ultra vires* acts which charge the members of a legal corporation?

4. What was the effect of the discouragement given to the formation of special partnership?

5. What is the measure of the *cestui que trust's* recovery from his trustee for profits derived from the use of the trust fund?

6. Why should a plaintiff be on his guard against accepting the issue of no partnership set up by a defendant?

7. What gives partners the power to represent each other?

8. If one of two purchasers of land gave a joint note for himself and co-purchaser for the purchase-money, is the co-purchaser liable on the note?

9. Explain the historical changes of profit-sharing as an indication of partnership.

10. How are common carriers distinguished from private carriers?

PROFESSOR BISPHAM.

Principles in Equity.

1. Explain what is meant by "*Substantive Law*," and "*Remedial Law*," and give illustrations at Common law, and under Statute law, both in England and in the United States.

2. What is meant by the maxim, "Equity acts *in personam*"? Give examples.

3. Under what three general divisions have the Principles of Equity been studied; and what are the subdivisions under the first two?

4. What is a trust? Explain the difference between a trust and a fidei commissum.

5. When was the Statute of Uses passed? What was the effect?

Digitized by Google

6. State the rules as to the way in which a voluntary settlement may be made. What is the leading case?

7. Under what head was the doctrine of following trust funds considered? What is the doctrine; and what explanation of it was given in Hallett's Estate?

8. Mention some points of difference between the English rules in regard to trusts for the sole and separate use of married women, and the Pennsylvania rules.

9. What are the characteristics of a representation which will operate as an estoppel? Explain them.

10. Will equity interfere to restrain the breach of a negative covenant; and will it ever import a negative quality into an affirmative covenant?

PROFESSOR BISPHAM.

Practice and Pleading in Equity.

1. Define Practice and Pleading in Equity.

2. What are some of the general characteristics of equitable relief? Explain those which you mention.

3. Mention any four heads of Equitable Jurisdiction of the Courts of Common Pleas in Pennsylvania.

4. What courses may be pursued by the plaintiff when a defendant files a plea; and what may be the several results?

5. Suppose a bill in equity were filed, setting forth a loan of money from plaintiff to defendant, and praying for a decree for its repayment, would any rule of equity pleading be violated by such a bill? If so, state the rule and explain it.

PROFESSOR PATTERSON.

1. What are the distinctions between real and personal property?

2. What are the historical steps in the development of the right of private property in land?

3. What has been the influence of the feudal system upon the law of real property?

4. Define an estate tail, and give the history of that estate in England and in Pennsylvania.

Digitized by Google

5. What are the distinctions between joint tenancy, tenancy in common, and coparceny?

6. A. B. is a widower with one child, C. D. An uncle devises "Whiteacre to A. B. for the term of his natural life, with remainder to his heirs in fee." Another uncle devises Blackacre "to A. B. for the term of his natural life, with remainder to his child C. D. in fee." What estates do A. B. and C. D. take under each devise, and why?

7. What was the theory, and what were the effects of seisin at Common Law?

8. Deed to A. and his heirs to the use of B. and his heirs, in trust for the sole and separate use of C., the wife of D., with remainder to D. and his heirs. What estates do A., B., C. and D. take, and why?

9. Under what circumstances is a widow entitled to Common Law dower in Pennsylvania?

10. What is eminent domain, and what are the limitations upon its operation?

PROFESSOR BIDDLE.

Evidence.

(In all cases give reasons, fully, for the answer; and state the rule governing the answer.)

1. State the rules on the presumptions as to alterations of a document. To what branch of Evidence does this subject properly belong?

2. In a suit on a promissory note the defendant offers the record of a former suit and judgment between the same parties on two notes of the same amount and same date as the one now in suit, showing verdict and judgment for the plaintiff on one of those notes only; but the record does not indicate on which of the two notes verdict and judgment was given. The defendant further offers to prove by a juror in the first suit that the note on which the verdict was given was the same as the one now in suit. Can either piece of testimony be given? Against whom is the judgment evidence? Give an instance where a judgment is not evidence in a subsequent proceeding between the same

Digitized by Google

parties, although the issue relates to the same subject-matter as in the first case.

3. What witnesses, who are still incompetent under one of the provisions of the Act of 1887, may be made competent by another provision of the same Act? In what manner do they become competent? Give the reasons for the provisions of the Act applicable to these questions from the point of view of common sense.

4. Secondary evidence of a notice in writing (to produce which writing no notice has been given), and which is under the control, but not in the possession of the adverse party is offered; is it admissible? When may secondary evidence of a document be given?

5. Photographic copies of an admittedly genuine signature of A. are offered in a suit where the issue is whether a particular signature is that of A. Can an expert testify from inspection and comparison of the photographic copies with the signature in issue whether the latter is written by A.? Can he testify that the signature in issue is, in his opinion, feigned and simulated, and not genuine? Are the photographic copies admissible for the inspection of the jury, in the absence of expert evidence? Could a bank cashier who had never seen A. write, but under whose constant notice in the usual course of business checks had frequently passed, purporting to be those of A., give his opinion who wrote the disputed signature? Is this expert evidence?

6. A having two legitimate grandsons, and one illegitimate, leaves his property by will to his "grandchildren." To whom does it go? Would the result be the same if he had only two grandsons, of whom one was illegitimate?

7. A Pennsylvania marriage being in issue an oral statement by a deceased clergyman made six months after the event referred to that he had performed the marriage is offered, coupled with evidence that no license, as required by the Act of Assembly, has been obtained, in consequence of which he became liable to a fine; is it admissible?

8. To show that a verbal contract of service was for less than a year, evidence is offered that the employer, who is dead, had

Digitized by Google

in the course of his business been in the habit of hiring servants, and that his practice was to enter the time and terms of such hiring in a book kept by him for that purpose. The book is offered showing an entry, dated at the time of the making of the contract, and stating its substance, showing that it was for half a year; is the evidence admissible?

9. A letter is offered on a trial for high treason, written by a co-conspirator with the prisoner to a delegate of a secret society, to which all three belonged, describing criminal acts which were part of the plot, which had occurred at the place from which the letter was written. It then went on to distinctly encourage and exhort the delegate to proceed with the criminal business, in which the writer and the prisoner were engaged, and to repeat the acts described. Was it evidence against the prisoner?

10. A. being charged with embezzlement, B., his counsel, observes an entry in A.'s account book, charging A. with the sum said to have been embezzled, which was not in the book when B. was first employed; and A. being taxed by B. with having fraudulently inserted the entry, admits to him that he had done so. In a subsequent action by A. for malicious prosecution, can B. testify as to what he himself observed in regard to the entry, and as to A.'s admission, either or both?

PRIZES.

The Alumni of this Department have established two prizes —one of seventy-five dollars, called the Sharswood Prize, and one of fifty dollars, called the Meredith Prize—to be competed for by the graduating class, for the best and second best graduation essay. They are awarded annually by the Faculty.

A Faculty prize of fifty dollars is given annually to the student in any of the classes who passes the best written examination with all the professors, the answers to the questions to be completed within a limited time.

The names of such students in each class as shall hereafter pass the annual examination with distinction will be printed in the annual catalogue.

Digitized by Google

ADMISSION TO THE BAR.

Graduates of this department are admitted to practice in the Courts of Common Pleas and Orphans' Court in Philadelphia, upon compliance with the rules of court as to registration.

FEES.

Each student pays a matriculation fee of five dollars, and in addition thereto a term fee of fifty dollars, payable in advance. No other charge is made. The total cost to a student of taking a three years' course of instruction and receiving a degree of Bachelor of Laws is, therefore, $305. The term fee of fifty dollars must be paid within the first week of each term.

Application for admission to the classes should be made to Prof. C. Stuart Patterson, Dean of the Faculty of Law, at his office, which is now No. 38 South Third street, Philadelphia, but which will be on and after 1st September, 1889, in the Building of the Girard Trust Company, N. E. corner of Broad and Chestnut Streets, Philadelphia.

POST-GRADUATE COURSE IN LAW.

MATRICULATES.

SENIORS.

Harrison H. Brace,	St. Paul, Minn.	
Louis P. Brennan,	Philadelphia,	116 S. Fourth St.
Walter W. Calmore,	Philadelphia,	501 Chestnut St.
Alex. Renshaw DeWitt,	Philadelphia,	39 S. Third St.
Henry W. Smith,	Philadelphia,	432 Walnut St.

JUNIORS.

J. Claude Bedford,	Lost Creek.	
Louis A. Biddle,	Philadelphia,	712 Walnut St.
Franklin S. Dickson,		
W. Roger Fronefield,	Media.	
John Lentz Garrett,	Chester.	
Philip H. Goepp,	Philadelphia,	1430 S. Penn Square.
Harry F. Stitzell,	Philadelphia,	1430 S. Penn Square.

Total, 12.

Digitized by Google

This course has for its aim to broaden and deepen the foundation of legal education. The first step required for the student's progress is the thorough training of a Law School. In the drill of an ordinary course at such an institution he acquires a practical experience in the machinery of litigation, and he also acquires the lawyer's process of handling cases or of reasoning from them by analogy, while at the same time he masters the leading principles as they are applied in the main departments of law.

The advanced student starts with this equipment. His task is now that of the true lawyer, to find out the reason for every legal proposition that is established, and also to discover its relative importance in the hierarchy of principles which make up the system of law. The investigation involves researches in two directions: First, the source of each principle must be discovered, and the germ when found must be traced through the changes it has undergone in the course of its growth or decay. The soundness of a principle or the range of its application can thus be illustrated and tested by experience. Owing to the conservative energy of the English race, pre-eminently exemplified in its lawyers, legal doctrines have maintained their continuity in spite of conquests and revolutions, thus furnishing an opportunity for the study of principles in operation under different institutions.

The material for investigating the sources of our law are abundant. The Anglo-Saxon laws exist in a state of exceptional completeness; the Feudal system has been wrought out almost before our eyes and stands before us in its rigid symmetry. The mediæval trade customs which entered England with commerce have been preserved in municipal statutes; the Pandects are a repository from which common lawyers have pilfered, from Glanville to Story. A lawyer who reads the Digest of Justinian for the first time will be struck by the familiar ideas that he encounters at every turn, and which he thought were inspired by the common law until he met them in Justinian's compilation.

The sources of our law have been explored, but they have not been turned to account. A history of legal thought must be

Digitized by Google

written in order to make our precious archives available, and until that desideratum is obtained the full benefit of experience, which is the only guide for the application of any legal doctrine, will not be at command. In the absence of such a history, the scattered information bearing upon the genesis and evolution of legal tenets must be gathered at a disadvantage.

The second study is to classify the law and reduce it to a system. The Profession shares the aspiration of the lay public for a body of law that everyone can understand. It is this professional craving which accounts for the multitude of text-books professing to abridge different parts of the law, and for the frequent attempts to embody sections of the law in a series of propositions. The common aim of the bar and of the public is to simplify the law. The profession, however, knows that this can be accomplished in but one way, and that is by mastering the principles that underlie the different phases of the law. Not only must every part be known, but its relation to every other part must be ascertained in order to organize a system. The epitomes, made of different parts, serve to counteract the segregation of law according to the objects to which it is applied, and to correct this retrograde tendency. The principles that are universal, extracted from digests of all the parts, will form a body by themselves, and the rank of each principle will be regulated by its relative importance. The modifications that the principles undergo in special parts of the law will be the only qualifications requiring special mention. The principles, for instance, of patent law will then be severed from the arts and sciences, and form an integral portion of the legal system. The best professional opinion could readily furnish such an analysis of this, as well as of other specialties. The law is not absorbed by the material in which it works; on the contrary, by classifying matter the law brings it under the sway of reason. The law will be simplified because it will be scientific. It will not be petrified by enactment.

COURSE OF STUDY.

The course of study covers two years. The student, however, can begin at the opening of either year, November 1st.

Digitized by Google

One year of the course is devoted to the study of the Roman law and of the principles that have grown out of it.

The text-books used in this course are Hadley's *Introduction to the Roman Law*, Mackeldey's *Roman Law* and Holland's *Jurisprudence*. But these text-books serve simply as an outline of the subject. The works of Austin, Clark, Markby, Hunter, Moyle, Roby, and others in English, besides authors in German and French, are consulted and utilized to fill out the framework of study.

In the analysis of an act, an important element in legal investigation, Aquinas and the Jesuit writers of to-day furnish the only source of information. Gury's *Compendium Morale* is used, though any Catholic manual would serve the purpose.

The year devoted to the study of the Common law is taken up with the Anglo-Saxon law, the Feudal system, and the principles peculiar to the Common law and developed in the course of its history. There is no adequate history of the English law, and the results of German investigations, of great importance during the past fifty years, lie scattered through separate treatises and periodicals, and have not been collected and made accessible to English students. The work of Glasson, *Histoire du droit et des Institutions d'Angleterre*, comprehends in its first and second volumes a summary of the modern researches into the early periods of our law, both Saxon and Norman. The second volume on the Norman period is used as a text-book in connection with Gundermann's *Die Common Law* and Digby's *History of the Law of Real Property*. Kemble's *Anglo-Saxons in England* is the only available work in English for the Saxon period, and is adopted as the text-book for the class.

The primary principles of the Common law have been investigated by Judge Holmes, and his work on the Common law will serve as the guide for a study of them. The comparison of English and Continental theories of law is forced upon the profession in controversies between citizens of different countries where the rules of the various systems compete for the control of the legal relations between the parties. The work of Westlake on Private International Law is the most convenient text-book, though Story, Wharton, Foote and other writers will be consulted.

Digitized by Google

ADMISSION AND FEES.

Graduates of any law school of recognized standing and members of the bar are eligible as students in this department. The annual fee for tuition is twenty-five dollars.

EXAMINATIONS AND DEGREES.

Examinations are held annually in May, and are both oral and written.

Graduates of this Course receive the Degree of Master of Laws, unless the post-graduate course of law is combined with two other courses of study in the Department of Philosophy. Then the Degree of Doctor of Philosophy is conferred, on conditions stated on pp. 181–183.

A thesis upon some topic connected with the course is required to be handed in as early as possible during the second year. It is expected to contain an exhaustive analysis of the subject-matter.

For further information apply to

PROF. JAMES PARSONS,
1534 Locust Street,
Philadelphia.

Digitized by Google

If History be chosen as a major, either Ancient, Mediæval or Modern History may be taken as a special field, but in all cases a knowledge of General Political History will be required. If Political and Social Science be taken as a major, either Political Economy or Political Science, in the narrower sense, may be taken as the special field, but a general knowledge of the other will be required.

If Botany or Zoölogy be chosen as a major, any department of either science may be chosen as the special field, but a general knowledge of the other departments will also be required.

Semitic Languages.

1. *a.* Any one of the following languages may be selected as a major study: Arabic, Assyrian, Ethiopic, Hebrew, Syriac.

b. In addition to these, any one of the following may be selected as a minor study: Post-biblical Hebrew, Palestinian Aramaic, Babylonian Aramaic, Samaritan, Amharic.

2. A student who selects a Semitic language as his major study may choose another as a minor study; but no student is allowed to take two Semitic languages as his two minor studies, whether he selects a Semitic language as his major or not.

3. Whatever Semitic language a student may select as his major study, he will be required to show a good knowledge of Hebrew grammar, and be able to read an ordinary historical Hebrew text at sight.

4. If a Semitic language be taken as the major study, a general knowledge of two other Semitic languages shall be required, as follows: With Arabic, Ethiopic and Hebrew; with Assyrian, Hebrew and Arabic; with Hebrew, either Palestinian, Aramaic or Syriac, and either Arabic or Assyrian; with Ethiopic, Arabic and Hebrew.

By a general knowledge is meant an acquaintance with the grammatical principles of the language and some practice in reading; such an amount in Arabic, for example, as would be equivalent to Socin's Arabic Grammar with the Chrestomathy.

5. If a student select the major study and one minor study in the Semitic group, the language chosen as the minor shall be other than the two languages required in connection with a Semitic language as a major study.

Digitized by Google

Any application for further subdivision of these subjects must be referred to the Executive Committee of the Faculty.

Under favorable circumstances it will be possible to obtain the Ph.D. degree after two years' graduate study; but if the subjects selected by the candidate are new to him, or if he does not give up his undivided time to the work of the course, this period will be sufficient only in exceptional cases.

Each candidate must register at the office of the Dean, at the beginning of each academic year, on or before the first Friday in October. A student who omits to register at the prescribed time without a satisfactory excuse is liable to be dropped from the list.

Women are admitted to any course for the Ph.D degree on the same conditions as men.

FEES.

For those who are in regular course for the Ph.D. degree the fee is $150.00 a year. The charge for those who enter as special students, and take one or more courses, varies with the subject chosen and the amount of instruction given. The matriculation fee (paid by all students) is $5, and the graduation fee $35.

For further information respecting this department, address the Dean of the Faculty.

Digitized by Google

DEPARTMENT OF PHYSICAL EDUCATION.

This department carries into practical operation the conviction that during the period of growth the body needs quite as much training as the mind, and that a college which holds out incentives to intellectual progress should not overlook the bodily progress without which all intellectual prizes, when won, are useless. To what other cause than the neglect of physical culture is it due that, in times past, the first scholars in college generally failed in after life to make good their early promise? Impressed with the belief that those who seek to develop the mind should also exercise a supervision over the body, the University has instituted this Department, and, through the liberality of the City and the zeal of the Alumni, has provided the means, and, what is equally important, the system, for the due care and development of the Physical Education of its students.

The means are supplied in the Athletic Grounds, obtained from the City, lying next to and partly surrounded by the College buildings, and comprising four acres, which have been fenced, graded and improved, a fine quarter-mile track laid, the middle of the lot prepared for base-ball, foot-ball, tennis, etc., a grand stand erected, and a competent person engaged to supervise and restrict the use of the grounds, and to see that the intentions of the Trustees that they are to serve the purpose of Physical Education, as well as of healthful relaxation, shall be thoroughly carried out. The boat-house of the Athletic Association, situated on the Schuylkill, above the dam, is open to all matriculates in the department of Physical Education upon the payment of a small additional sum.

The University has also fitted up a gymnasium, wherein are to be found all the latest appliances for the proper, systematic and symmetrical development of the body. These are to be used

Digitized by Google

by each student only after undergoing his physical examination, and receiving advice from the Director of this Department as to the particular needs of his body, and as to the weak points which need strengthening and development. This advice is founded upon a careful study not only of his present condition, but of his personal and family history, taking thus into consideration hereditary predisposition to disease, if any exists.

The system consists in direct, personal, individual care of each student, who, immediately after entrance to College, receives a thorough physical examination in regard to his general health, strength and muscular development, which is duly recorded. An extract from this record is sent to his parent or guardian as follows:

DEAR SIR:

The following extract from the University Records represents the general physical condition of
of the Class of

Development . . . . . Average Development . . . .
Strength . . . . . Average Strength . . . . . .
Condition, viz.: Relation of Strength
to development . . . . . Average Condition . . . . .
Chest Capacity . . . . . Average Capacity . . . . . .
Muscles especially requiring development . . . . . .
Exercise recommended . . . . . .
General Advice . . . . . .

It is hoped that he will follow the line of physical work thus indicated with sufficient persistence to effect some permanent improvement.

[Signed] *Director of Physical Education.*

This examination is repeated at stated intervals, certainly twice every year of his college life, and the record will show the improvement or deterioration of each student, and the amount and the quality of exercise which each one demands, both of which must be administered or recommended by an experienced teacher. Merely competitive sports do not of themselves supply these demands. Some men, naturally athletic and fond of exercise, need to be guided and directed, sometimes to be restrained; others, of sluggish temperament or of too studious habits, must

Digitized by Google

be stimulated; all require to have their work, whether voluntary or compulsory, directed by proper methods, so that the result may be a harmonious and symmetrical development of the entire organism.

In our competitive sports the greatest care is exercised in recommending training for athletic contests. Only such students are advised to train for special events as have shown themselves naturally adapted to work of that kind. Students are at all times freely advised, both in the gymnasium and in the field, concerning their work, diet, clothing and hours of sleep.

The earnest co-operation of parents or guardians is very necessary in the attainment of the best results in this Department. Parents need have no fears that the health of those entrusted to the care of the Department will suffer from overwork, for the greatest care is constantly exercised to prevent overwork. It has, without exception, also been the experience that those students who conscientiously follow the instructions received from the Department increase in mental vigor *pari passu* with the improvement in bodily strength.

Plotting charts based upon all the measurements and strength tests previously made at the University of Pennsylvania are used to indicate at a glance the relative standing of any particular student compared with all previous examinations. The advantage of these charts is that they show the changes noted at different examinations, in addition to the individual's standing as compared with that of all preceding students.

For further information apply to

A. H. P. LEUF, M.D.,
Director of Physical Education,
129 S. 36th St.

Digitized by Google

LIBRARY.

The Library is one of the original departments of the University, possessing among its treasures works presented to the Academy of Philadelphia in 1749 (the year of its institution), others purchased by a Committee, of which Benjamin Franklin was chairman, in 1750, and still others given by the Rev. William Smith, D.D., first Provost of the College of Philadelphia, and by Louis XVI and other early friends and patrons. It now contains over 50,000 bound volumes, and considerably more than that number of unbound volumes and pamphlets.

It comprises a fine collection of public documents, dating from the institution of the Federal Government, and has been for some time an official depository of the Government for later publications.

Valuable additions have been made to the departments of history and literature from the income of the TOBIAS WAGNER LIBRARY FUND, given to the University in memory of a deceased Trustee.

THE COLWELL LIBRARY, the munificent gift of the late Stephen Colwell, consists of over 7,000 volumes, and is one of the most complete collections of works on Finance and Political Economy in the world. It contains nearly everything of importance on these subjects in the English, French and Italian languages published before 1860. It is supplemented by THE CAREY LIBRARY, the bequest of the late Henry C. Carey, which embraces many books of more recent date, is especially rich in statistics, European government reports, and the like, and includes about 3,000 English pamphlets, bound in chronological order, and covering the period from the close of the seventeenth century to our time. The pamphlets were presented to Mr. Carey by Mr. McCalmont, of London.

THE EVANS ROGERS LIBRARY is composed of standard works

Digitized by Google

on drawing, mathematics, astronomy, physics, surveying and explorations, as well as of technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering. It contains, also, a valuable collection of reports of American, English and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams, and drawings.

THE WETHERILL LIBRARY consists of works on Chemistry.

THE ALLEN LIBRARY includes about 5,000 volumes relating to Bibliography, Greek and Latin Literature, Military Science, and Shakespeare, selected with great care by their former owner, the late Professor George Allen, LL.D., of the University.

THE HENRY SEYBERT LIBRARY OF MODERN SPIRITUALISM embraces a large collection of works on that and cognate subjects.

THE MCCARTEE LIBRARY comprises nearly 1,000 volumes in Chinese and Japanese, and over 200 in European languages concerning the history and literature of China and Japan.

THE KRAUTH LIBRARY, founded by the Society of the Alumni of the College Department in honor of the late Vice-Provost of the University, the Rev. Charles P. Krauth, D.D., comprehends the subjects of Intellectual and Moral Philosophy.

THE CRAWFORD LIBRARY, the gift of Major-General Samuel Wylie Crawford, M.D., LL.D., consists of over 1,000 volumes on a great variety of subjects, literary, scientific and historical.

THE HAYDEN LIBRARY comprises works on geology, palæontology, zoölogy and botany, presented to the University by the widow of the late Professor F. V. Hayden, M.D.

THE STILLÉ MEDICAL LIBRARY, founded by Professor Alfred Stillé, M.D., embraces 6,000 bound volumes and as many unbound volumes and pamphlets.

Besides the books on Natural History contained in the general Library, there is a special collection of about 4,000 volumes relating to that subject in the Biological Laboratory.

Among the works on Law are many on Roman jurisprudence and the civil code, from the library of the late Judge Bouvier, and presented to the University by his son-in-law, R. E. Peterson, M.D. There is, also, the noted collection of Ameri-

Digitized by Google

can, English, Scotch and Irish Reports, numbering 4,200 volumes, formerly the property of the Hon. Benjamin H. Brewster, and the gift of George W. Biddle, Esq., and family, in memory of the late George Biddle, Esq.

THE POTT LIBRARY, recently purchased by private subscription, embraces the philological library of the late Professor F. A. Pott, of the University of Halle, as well as many valuable additions to Professor Pott's collection. It contains between 4,000 and 5,000 volumes, and represents almost every language and dialect of any prominence. It is especially rich in the departments of Sanskrit and the Romance and Teutonic languages, particularly the German dialects, as well as in the Greek and Latin tongues. It includes a good collection of books on the alphabet and its history, and a remarkably fine collection on gypsy dialects and proper names.

The Library is open every day during the session, except Saturday and Sunday, from 9 A.M. to 5 P.M., and both professors and students are permitted to take books out. The use of the Library for consultation is accorded graduates and other persons properly introduced.

Digitized by Google

CENTRAL COMMITTEE OF THE ALUMNI.

This organization, the result of a growing desire amongst the Alumni at large for a definite influence in the affairs of the University, was established by the Board of Trustees, March 7th, 1882. Under the Revised Statutes, sec. 34, the Central Committee is authorized, for every third vacancy which may occur in the Board of Trustees, to nominate four candidates, one of whom may be chosen a member of the Board: if none of these be elected, others are to be nominated until the vacancy is filled. The Central Committee arranges itself in certain sub-committees, one for each Department, whose duty it is, from time to time, to attend the examinations, recitations and other exercises of the Department for which it has been appointed, and to confer with the Professors and Faculty thereof on all matters tending to improvement. It appoints, too, a Committee on Property and Endowment, to which the Treasurer of the University sends annually a copy of his report to the Board of Trustees of the income and assets of the University.

The officers of the Central Committee are a President, a Secretary and a Treasurer, elected annually. The members are thirty in number, six elected annually for a term of five years, by the duly qualified electors, as defined below, voting by ballot, in person, on Commencement Day, in Philadelphia. Of the six so elected, two must be graduates of the College Department of at least three years' standing, two of the Medical Departments, and two of the Law Department. All persons are qualified electors who have received a degree, honorary or in course, from the University, except members of the Board of Trustees and other officers of government or instruction, none of whom are eligible as members of the Central Committee. Preliminary to the annual election a list of eighteen eligible names is mailed to the Alumni, who select six of the number as their regular nominees. At the election, however, any other duly qualified persons may be voted for.

All Alumni are cordially urged to bring to the attention of the

Digitized by Google

Committee any matters or suggestions affecting the welfare of the University. Alumni who have not heretofore received postal-card ballots for the preliminary nominating election, but desire them, should send name and address, with degree and year of graduation, to the Secretary.

MEMBERS OF THE CENTRAL COMMITTEE.

1889*	
Claudius H. Mastin, M.D., LL.D.,	Mobile, Alabama.
Chas. E. Cadwalader, A.M., M.D.,	240 S. Fourth St., Philada.
R. Dale Benson, A.M.,	510 Walnut St., do.
Effingham B. Morris, A.M., LL.B.,	404 Locust St., do.
Alfred Lee, A.M., LL.B.,	520 Walnut St., do.
John Douglass Brown, Jr., A.M., LL.B.,	Drexel Building, do.
1890.	
George C. Harlan, M.D.,	1515 Walnut St., Philada.
Theodore H. Seyfert, M.D.,	1709 Mt. Vernon St., Philada.
John Leighton McKim, A.M.,	Milford, Del.
Persifor Frazer, A.M., D. ès Sc. Nat.,	Drexel Building, Philada.
William R. Philler, A.M., LL.B.,	1340 Chestnut St., do.
Hampton L. Carson, A.M., LL.B.,	Drexel Building, do.
1891.	
Henry Budd, A.M.,	719 Walnut St., Philadelphia.
William H. Klapp, A.M., M.D.,	2132 Pine St., do.
Herbert M. Howe, M.D.,	1606 Locust St., do.
Robert H. Neilson, A.M.,	215 S. Fifth St., do.
J. Sergeant Price, LL.B.,	709 Walnut St., do.
Walter George Smith, A.M., LL.B.,	402 Walnut St., do.
1892.	
James W. Robins, D.D.,	1821 De Lancey Place, Phila.
H. Laussat Geyelin, A.M., LL.B.,	134 S. Ninth St., do.
J. Levering Jones, LL.B.,	Drexel Building, do.
Alfred Whelen, M.D.,	123 S. Twentieth St., do.
B. Alexander Randall, M.D.,	1806 Chestnut St., do.
John Marshall Gest, A.M., LL.B.,	129 S. Fifth St., do.
1893.	
John H. Packard, A.M., M.D.,	1926 Spruce St., Philada.
George F. Martin, A.M.,	3903 Locust St., do.
Joseph G. Rosengarten, A.M.,	532 Walnut St., do.
Charles Claxton, A.M., M.D.,	2114 Pine St., do.
James T. Mitchell, LL.B.,	1722 Walnut St., do.
William M. Stewart, Jr., A.M., LL.B.,	Drexel Building, do.
President. J. Sergeant Price,	709 Walnut St., Philada.
Secretary. John Marshall Gest,	129 S. Fifth St., do.
Treasurer. William H. Klapp, M.D.,	2132 Pine St., do.

*The term expires, in each case, on Commencement Day of the year indicated.

Digitized by Google

DEGREES, HONORS AND PRIZES, 1887–1888.

HONORARY DEGREES.

JUNE 6, 1888.

Master of Arts—HENRY R. TOWNE.

Doctor of Divinity—THE REV. GEORGE S. CHAMBERS, A.M., THE REV. JOHN K. MURPHY.

Doctor of Laws—E. OTIS KENDALL, LL.D., D. HAYES AGNEW, M.D., LL.D.

DEGREES IN COURSE.

JUNE 6, 1888.

Bachelor of Arts.—

William Lyttleton Barclay,
Richard Henry Bayard Bowie,
Joseph Spencer Brock,
John Ruckman Fell,
John Sims Forbes,
Walter Budd Keen,
Theodore Wm. Kretschmann,
Stuart Douglas Lansing,
James Barton Longacre,
William Wilson Longstreth,
Ernest de Fremery Miel,
S. G. Morton Montgomery,
William Salter Porter,
James Martin Raker,
Horace Clark Richards,
John David Samuel,
John Duncan Ernest Spaeth,
Lawrence Savery Smith,
Carrow Thibault,
Lightner Witmer,
Carleton Bicknel Zeilin.

Bachelor of Philosophy.—

George Clay Bowker,
Franklin Derstine Hartzell,
Thomas Atkinson Jenkins,
Samuel Kahn Louchheim,
Adam Keith Luke,
Edward Alden Miller,
David Emanuel Simon,
Charles Sturgis Wood,
Julian Hiland Dewey,
John Alexander McIlwain,
Norton Buel Young.

Bachelor of Science.—

Frederick Colton Clarke,
Eugene Delano Cleaver,
Thomas Darling Drown,
George Brodhead Harris,
Manton Eckfeldt Hibbs,
William George Houston,
Frederick Merwin Ives,
Herbert Moses Kaufmann,
Edwin Robert Keller,
Charles Everett Ross,
William James Smith,
William Caner Wiedersheim,
Maurice Davidson Wilt.

Digitized by Google

Bachelor of Laws.—

J. Claude Bedford,
J. Uhle Bethell,
Anderson Bourgeois,
George A. Bourgeois, Jr.,
O. Percy Bright,
T. Fernley Brooks,
W. Wilson Carlile,
John R. Cassel,
Franklin A. Coles,
David Howard Conrade,
A. Morton Cooper,
Franklin Strawn Dickson,
Joseph McG. Dohan,
Franklin H. Evans,
C. C. Felton,
Davenport Galbraith,
Francis G. Gallagher,
Philip Henry Goepp,
Christian Gosh,
Harry Green,
Charles Francis Gummey, Jr.,
George Quintard Horwitz,
George W. Jacobs, Jr.,
William G. Littleton,
Henry Stanislaus McCaffrey,
David S. McCann,
Henry C. McDevitt,
John Bruce McPherson,
Clinton O. Mayer,
Edward DeV. Morrell,
Aaron A. Mossell,
George DeB. Myers,
Isaac Norris, 3d,
Henry L. Patterson,
W. Grant Pierce,
Henry B. Robb,
J. Martin Rommel,
Horace M. Rumsey,
Conrad Shamel Sheive, Jr.,
Alfred P. Smith,
George Lambert Smith,
Henry Anstie Smith,
H. Forrest Smith, Jr.,
W. Wharton Smith,
J. Burton Stackhouse,
Guy LeR. Stevick,
Harry F. Stitzell,
Frank Blockson Stockley,
Augustus B. Stoughton,
Theodore A. Tack,
George Herbert Taylor,
William G. Thomson,
George Vaux, Jr.,
Edward D. Wadsworth,
Harry S. Waldron,
George White Worman.

Bachelor of Sciences Auxiliary to Medicine.—

John Leffingwell Hatch, M.D., Hill S. Warwick, M.D.

Master of Arts.—

Herman T. Lukens, A.B., Landreth W. Thompson, A.B.,
J. Vaughan Merrick, Jr., A.B., Lewis L. Smith, A.B.,
Edward De Veaux Morrell, A.B.

Practical Chemist.—

Lee Käufer Frankel, B.S., John Philip Krecker, B.S.,
John Dawson Hawkins, B.S., Levis Passmore Newlin, B.S.,
John Julius Hovey, B.S., Robert Neales Riddle, B.S.

Mining Engineer.—

Thomas Darling Drown, B.S., Frank James Keeley, B.S.,
Joseph Sketchley Elverson, B.S., Milton Valentine Snyder, B.S.,
Daniel Morrell Stackhouse, B.S.

Digitized by Google

Civil Engineer.—

Enoch Jones Acker, B.S.,
Charles Louis Eugene Amet, B.S.,
John Stephens Durham, B.S.,
Silas Godfrey Griffith, B.S.,
Edward Fulbister Kenney, B.S.,
Theophilus Kuelling, B.S.,
William McLean, B.S.,
Albert Lee Magilton, B.S.,
George Ledlie Martin, B.S.,
Andrew Perry Redifer, B.S.,
Theodore Nelson Spencer, B.S.,
Horace A. Stever, Jr., B.S.,
Joseph Christian Wagner, B.S.,
John Wallace Weaver, B.S.

Mechanical Engineer.—

Henry Clay Adams, B.S.,
Henry Price Ball, B.S.,
Chas. Thos. Parry Brunner, B.S.,
Albert Rowland Cline, B.S.,
Edgar Pardee Earle, B.S.,
William Hahman, B.S.,
Willis E. Hall, B.S.,
William Byrd Page, B.S.,
David Pepper, Jr., B.S.,
Henry Hunter Seyfert, B.S.,
Alfred Henry Smith, B.S.,
Wm. Poultney Smith, Jr., B.S.

Master of Laws.—

Thomas F. McCourt, LL.B.,
William C. Scott, LL.B.

Doctor of Veterinary Medicine.—

B. Frank Bachman,
Helmuth C. Baltzer,
Leo Breisacher, Jr.,
Howard B. Felton,
Robert Formad,
Caspar Garrett,
Guldin R. Hartman,
Louis Olry Lusson,
Antoni Maurise,
Leon N. Reefer,
William Hodgson Ridge,
Albert F. Schreiber,
John Z. Tintsman,
William B. Werntz.

CERTIFICATES.

In the College Department.

Course in Science.—

Daniel Byrne,
Alfred Varley Sims,
William Warner Hill.

Course in Finance and Economy.—

Benjamin Wilfrid Fleisher.

Course in Music.—

Ella Ellis,
Edward S. Field,
Anne F. Pond,
Hedwig M. Schmitz,
Katharine Thunder,
Elizabeth Wolfe.

In the Department of Biology.

Edward Bancroft,
John A. Blouse,
Charles Meredith Burk,
Charles F. Nassau,
George G. Ross,
Elmer G. Whinna,
Albert D. Whiting,
Bernard Zweighaft.

Digitized by Google

DEGREES IN COURSE.

MAY 1, 1888.

Doctor of Medicine.—

Addison, Thomas G.,	Washington,	Dist. of Columbia.
Adler, Lewis H., Jr.,	Philadelphia,	Pennsylvania.
Agnew, Hulbert, A.M. (Princeton),	Philadelphia,	Pennsylvania.
Alleman, Horace M., A.B. (Lafayette),	Hanover,	Pennsylvania.
Andrews, Warren W., B.S. (Dickinson Seminary),	Lock Haven,	Pennsylvania.
Atwater, Edward P.,	Sydney,	Australia.
Baker, James H., A.B. (Hamilton),	Clinton,	New York.
Barberena, Narciso, B.S.,	Granada,	Nicaragua.
Blake, Lewis J., A.B. (Wofford),	Spartanburg,	South Carolina.
Bolton, Samuel, Jr., A.B. (Bucknell),	Philadelphia,	Pennsylvania.
Bonnaffon, Samuel Ashton, M.D.,	Philadelphia,	Pennsylvania.
Bowman, John H., B.S. (Dickinson Seminary),	Hazelton,	Pennsylvania.
Bulette, Wilbur W.,	Constitution,	Pennsylvania.
Canfield, William C.,	Bristol,	Rhode Island.
Cates, Benjamin B.,	Marysville,	Tennessee.
Coldren, William A.,	Van Wert,	Pennsylvania.
Colter, Frederick G.,	Woodstock,	New Brunswick.
Cooke, Edwin S., A.B. (C.H.S.),	Philadelphia,	Pennsylvania.
Downs, Norton,	Germantown,	Pennsylvania.
Easter, Daniel M.,	Baltimore,	Maryland.
Eckman, Philip N.,	Scranton,	Pennsylvania.
Egbert, Seneca, A.M. (Princeton),	Franklin,	Pennsylvania.
Faries, Randolph, A.B. (Univ. of Penna.),	Philadelphia,	Pennsylvania.
Ferrer, Adolfo Leon, A.B. (Ocampo, Mex.),	Tabasco,	Mexico.
Frame, Joseph K.,	Millsboro',	Delaware.
Frey, Lewis,	Scranton,	Pennsylvania.
Friend, Samuel H.,	Milwaukee,	Wisconsin.
Gentry, Alan F., A.B. (C.H.S),	Philadelphia,	Pennsylvania.
Gill, Walter Myers,	Allegheny,	Pennsylvania.
Goodwin, Eugene B.,	Kenton,	Delaware.
Greenewalt, Frank L.,	Chambersburg,	Pennsylvania.
Greene, Walton S.,	Aberdeen,	Mississippi.
Green, John Trail, A.B. (Lafayette),	Easton,	Pennsylvania.
Griesemer, Howard,	Reading,	Pennsylvania.
Gummey, Frank Bird,	Germantown,	Pennsylvania.
Hall, Harry N., Ph.G.,	Aguascalientes,	Mexico.
Hamill, Samuel M.,	Lemont,	Pennsylvania.
Hand, William Nelson,	Woodstock,	New Brunswick.
Harding, Frank H.,	Mansfield,	Ohio.
Hatch, John Leffingwell,	Rochester,	New York.
Hay, Charles McKenzie,	Woodstock,	New Brunswick.
Hayes, Joseph,	Spring Hill Mines,	Nova Scotia.

Hepler, Harry A.,	Reading,	Pennsylvania.
Heyl, Ashton Bryant,	Philadelphia,	Pennsylvania.
Hotchkiss, Walter William,	Meadville,	Pennsylvania.
Huber, William S.,	Lebanon,	Pennsylvania.
Hunter, James, Jr., Ph.G.,	Philadelphia,	Pennsylvania.
Johnson, Elmer E., A.B. (Muhlenberg),	Norristown,	Pennsylvania.
Kahn, Joseph,	Milwaukee,	Wisconsin.
Keller, Harry M.,	Stroudsburgh,	Pennsylvania.
Kelly, John J.,	Parsons,	Pennsylvania.
Kerns, Alvin J., B.S. (Ursinus),	Slatington,	Pennsylvania.
Klapp, Wilbur P.,	Philadelphia,	Pennsylvania.
Knoll, John G. W.,	Buffalo,	New York.
Lake, Wilson A.,	Green Creek,	New Jersey.
Landis, Eli Barr,	Lancaster,	Pennsylvania.
Le Conte, Robert G., A.B. (Univ. of Penna.),	Philadelphia,	Pennsylvania.
Lenagan, Frank P.,	Wilkes-Barre,	Pennsylvania.
Lincoln, Wm. R.,	Philadelphia,	Pennsylvania.
Long, Frederick F.,	Pittsfield,	Illinois.
Mackey, David,	Lewisville,	Pennsylvania.
Mallet-Prevost, Washington,	Zacatecas,	Mexico.
Matthews, Geo. S., A.B. (Brown),	Temple,	Pennsylvania.
Miller, Edwin H.,	Camden,	New Jersey.
Miller, Milo G., A.M. (Western Univ.),	Pittsburgh,	Pennsylvania.
Mitchell, Andrew J., A.B. (Allegheny),	Fredonia,	Pennsylvania.
Moyer, Irwin J., M.D.,	Pittsburgh,	Pennsylvania.
Myers, Oscar M., Ph.G.,	Rochester,	New York.
McMillan, James H., A.B. (Washington University),	St. Louis,	Missouri.
Nixon, John Howard,	Wilmington,	Delaware.
O'Brien, Harry J.,	St. Paul,	Minnesota.
Paris, Louis J.,	Philadelphia,	Pennsylvania.
Pennock, Walter I.,	Oxford,	Pennsylvania.
Pfoutz, Gilbert B.,	Philadelphia,	Pennsylvania.
Perry, Charles F.,	Norristown,	Pennsylvania.
Peter, Nathaniel C.,	Siegfried's Bridge,	Pennsylvania.
Pierce, William Chandler,	Wilmington,	Delaware.
Rabe, J. William,	Cleveland,	Ohio.
Ray, Frank W., A.B. (Union College),	Columbia,	South Carolina.
Riley, Gustavus T.,	Washington,	Dist. of Columbia.
Roberts, John B., A.M., M.D.,	Philadelphia,	Pennsylvania.
Ross, Thomas Haven,	Chestnut Hill,	Pennsylvania.
Rothrock, John L., A.B. (Penna. College),	Mifflintown,	Pennsylvania.
Saiki, Riichiro, M.D.,	Tokio,	Japan.
Salade, Louis Audenried, A.B. (Franklin and Marshall),	Tamauqua,	Pennsylvania.
Schantz, William S.,	Hosensack,	Pennsylvania.
Schoch, Lester E.,	Philadelphia,	Pennsylvania.

Digitized by Google

Schoch, Will E.,	Easton,	Pennsylvania.
Seibert, Albert A.	Pottsville,	Pennsylvania.
Sharples, Caspar Wistar, A.M. (Oregon University),	Eugene City,	Oregon.
Sharpless, William T.,	West Chester,	Pennsylvania.
Shick, William F.,	Easton,	Pennsylvania.
Shurtleff, Harry C.,	Philadelphia,	Pennsylvania.
Slocum, Charles E., Jr., M.D.,	El Paso,	Illinois.
Snavely, Harry B.,	Lancaster,	Pennsylvania.
Stavely, A. Livingston, A.B. (Princeton),	Lahaska,	Pennsylvania.
Stevens, John C., B.S. (Dickinson),	Duncannon,	Pennsylvania.
Steltz, P. Harry,	Allentown,	Pennsylvania.
Stiles, William E.,	Pittston,	Pennsylvania.
Sweringen, Budd V.,	Fort Wayne,	Indiana.
Taillacq, Ricardo,	Cienfuegoes,	Cuba.
Tam, John L.,	Georgetown,	Delaware.
Thomas, Thomas B.,	Wilkes-Barre,	Pennsylvania.
Thompson, Jesse B.,	Hurffville,	New Jersey.
Vanneman, William S.,	Salem,	New Jersey.
Voorhees, Shepard,	Daggetts Mills,	Pennsylvania.
Walter, Charles, A. B., (Central High School),	Philadelphia,	Pennsylvania.
Warder, Charles, B., M.D.,	Philadelphia,	Pennsylvania.
Webster, Charles F.,	Philadelphia,	Pennsylvania.
Wilbur, William L., A. B. (Princeton),	Hightstown,	New Jersey.
Winston, David Y.,	Auburn,	Kentucky.
Wood, Alfred C., Ph.G.,	Hatboro',	Pennsylvania.
Yeager, Frank N.,	Berrysburg,	Pennsylvania.
Zimmermann, Mason W., Ph.G.,	Philadelphia,	Pennsylvania.

June 6th, 1888.

Cawley, Morris F.,	Allentown,	Nicaragua.
Chamorro, Filadelfo,	Granada,	Pennsylvania.
Foltz, J. Clinton,	Lancaster,	Pennsylvania.
Gillam, William S.,	Langhorne,	Pennsylvania.

Of the foregoing there were from:

Australia,	1	New Jersey,	5
Cuba,	1	New York,	4
Delaware,	5	Nicaragua,	2
District of Columbia,	2	Nova Scotia,	1
Illinois,	2	Ohio,	2
Indiana,	1	Oregon,	1
Japan,	1	Pennsylvania,	73
Kentucky,	1	Rhode Island,	1
Maryland,	1	South Carolina,	2
Mexico,	3	Tennessee,	1
Minnesota,	1	Wisconsin,	2
Mississippi,	1		
Missouri,	1	Total,	118
New Brunswick,	3		

Digitized by Google

Doctor of Dental Surgery.—

Aguilar, Arturo,	Leon,	Nicaragua.
Ascher, Hugo,	Königsberg,	Germany.
Ayres, Percy C.,	Philadelphia,	Pennsylvania.
Baker, Boyd H.,	Hughesville,	Pennsylvania.
Baumgardner, Ira G.,	Philadelphia,	Pennsylvania.
Beck, Harry M.,	Wilkes-Barre,	Pennsylvania.
Belt, J. Ferris,	Wilmington,	Delaware.
Bower, Elmer E.,	Baumstown,	Pennsylvania.
Bowers, George A.,	Nashua,	New Hampshire.
Brown, Frederick W.,	New Haven,	Connecticut.
Bryant, William E.,	St. Paul,	Minnesota.
Burke, John J.,	Wilmot,	Pennsylvania.
Cabedo, Gabriel C.,	Gibraltar,	Spain.
Channell, William C.,	Montezuma,	Iowa.
Cogswell, Arthur W.,	Halifax,	Nova Scotia.
Cornelius, George T.,	Philadelphia,	Pennsylvania.
Dunwoody, J. Edward,	Philadelphia,	Pennsylvania.
Fenn, Henry H.,	Bridgeport,	Connecticut.
Fletcher, Charles R.,	Halifax,	Nova Scotia.
Fuller, Thomas B.,	Binghamton,	New York.
Gardner, Peter W.,	Milwaukee,	Wisconsin.
Gibbons, R. Hornsby,	Brighton,	England.
Graff, Mark W.,	Richmond,	Indiana.
Hart, Frank J.,	Girard,	Pennsylvania.
Heyde, Hans von der,	Constantinople,	Turkey.
Hopkins, Richard S.,	Cheyenne,	WyomingTerrit'ry.
Howard, Charles P.,	Champaign,	Illinois.
Jones, J. Benjamin,	Summit Hill,	Pennsylvania.
Keyes, William B.,	Rio de Janeiro,	Brazil.
Knod, Hans Ludwig,	Essen,	Germany.
Kuni, Harry W.,	Philadelphia,	Pennsylvania.
Le Fevre, Harry W.,	Hillsboro,	Ohio.
Link, Edward G.,	Rochester,	New York.
Lohmann, August,	Kassel,	Germany.
McCanna, Horace,	Atglen,	Pennsylvania.
McDaniel, W. Archie,	Birmingham,	Alabama.
Manship, John F.,	Milton,	Delaware.
Mayer, William J.,	New Haven,	Connecticut.
Meisburger, Louis C. J.,	Buffalo,	New York.
Paiste, James L.,	West Chester,	Pennsylvania.
Place, Eugene H.,	Freeport,	Illinois.
Ramsden, Harry M.,	Frankford,	Pennsylvania.
Rathbun, Chauncey M.,	Dunkirk,	New York.
Robinson, Will B.,	Greenfield,	Ohio.
Rue, Samuel F.,	Hightstown,	New Jersey.
Schwarze, Paul,	Leipzig,	Germany.
Segar, Albertus V.,	Westerly,	Rhode Island.
Smith, Charles E.,	Nashua,	New Hampshire.
Sullivan, George A.,	Lancaster,	Pennsylvania.
Tees, Louis F.,	Philadelphia,	Pennsylvania.
Tenny, Robert C.,	Eaton,	New York.

Digitized by Google

Thompson, Lamar I.,	Rochester,	New York.
Van Deursen, George L.,	Paris,	Illinois.
Weaver, Luther M.,	Hanover,	Pennsylvania.
Weinberg, Nathan,	St. John,	Kansas.
Wheeler, Walter F.,	Spencer,	Massachusetts.

SUMMARY.

Alabama,	1	New Hampshire,	2
Brazil,	1	New Jersey,	1
Connecticut,	3	New York,	6
Delaware,	2	Nova Scotia,	2
England,	1	Ohio,	2
Germany,	4	Pennsylvania,	17
Illinois,	3	Rhode Island,	1
Indiana,	1	Spain,	1
Iowa,	1	Turkey,	1
Kansas,	1	Wisconsin,	1
Massachusetts,	1	Wyoming Territory,	1
Minnesota,	1		—
Nicaragua,	1		56

HONORS.

In the College Faculty.

At the Examination for Degrees, Honors were awarded as follows:—

In the Course in Arts—

Of the *First Class*, to Horace Clark Richards and Theodore William Kretschmann.

Of the *Third Class*, to William Wilson Longstreth, William Salter Porter, Samuel George Morton Montgomery, Ernest de Fremery Miel, James Martin Raker, John Duncan Ernest Spaeth, and Carleton Bicknel Zeilin.

In the Course in Science—

Of the *Third Class*, to Frederick Merwin Ives, John Richard Savage, Jr., Herbert Moses Kaufmann, and Edwin Robert Keller.

In the Course in Finance and Economy—

Of the *Third Class*, to Thomas Atkinson Jenkins, Lightner Witmer, Adam Keith Luke, George Clay Bowker, Samuel Kahn Louchheim, and Edward Alden Miller.

In the Course in Philosophy for Undergraduates—

Of the *Third Class*, to John Alexander McIlwain and Julian Hiland Dewey.

At the Annual Examination, Honors of the *First Class*,

In the Course in Arts—

To Josiah Harmar Penniman, of the Sophomore Class.

In the Course in Science—

To Edward Adams Shumway, of the Freshman Class.

Digitized by Google

In the Faculty of Dentistry.

At the Examination for Degrees, Honorable Mention for averages, exceeding 90, to

Horace McCanna,	Pennsylvania.
James L. Paiste,	Pennsylvania.
George L. Van Deursen,	Illinois.
George A. Bowers,	New Hampshire.
Ira G. Baumgardner,	Pennsylvania.
John J. Burke,	Pennsylvania.
Edward G. Link,	New York.
Robert C. Tenny,	New York.
William E. Bryant,	Minnesota.
Elmer E. Bower,	Pennsylvania.
Luther M. Weaver,	Pennsylvania.

COMMENDED THESES.

In the College Faculty.

In the Course in Science—

With High Commendation—The Theses of Messrs. Spencer, Wagner, and McLean, of the Civil Engineering Section, Post-Senior Class.

With Commendation—The Theses of Messrs. Magilton, Martin, Redifer, Stever, and Weaver, of the Civil Engineering Section, Post-Senior Class, and of Messrs. Hibbs and Ives, of the Civil Engineering Section, Senior Class.

In the Faculty of Veterinary Medicine.

Honorable Mention for the best Thesis, Howard B. Felton; for general excellence, Leon N. Reefer.

PRIZES.

June 6, 1888.

I. In the College Faculty—

1. For the best examination on the *Oration of Æschines against Ctesiphon* by a member of the Junior Class, equally to Conway Dillingham and Charles Peabody, with honorable mention of James Clayton Mitchell.

2. For the best examination on the *Lectures on Quaternions* given to the Voluntary Junior Class; First Prize to Charles Peabody; Second Prize to Charles Newton Clement Brown.

3. For the best Essay in History and English Literature by a member of the Senior Class, to Thomas Atkinson Jenkins. Subject: *The Constitutional Convention of 1787 and its Work.*

Digitized by Google

4. For the best Essay by a member of the Junior Class, to Elliston Joseph Perot. Subject: *The By-Ways of English Literature.*

5. For the best Declamation by a member of the Sophomore Class, to Hugh Walker Ogden, with honorable mention of Robert Reineck Truitt and William Wilson Barr, Jr.

6. To a member of the Scientific Classes for improvement in Drawing, and for general good conduct and application, to James Clark Irwin, with honorable mention of Edward Adams Shumway.

7. The SOCIETY OF THE ALUMNI Prize for the best Latin Essay, by a member of the graduating class, to Theodore William Kretschmann for his essay, *De Romana Satira.*

8. The SOCIETY OF THE ALUMNI Prize for the best Original Declamation by a member of the Junior Class, to Charles Newton Clement Brown, with honorable mention of Oscar Pearl Chamberlain.

9. The HENRY LA BARRE JAYNE Prize for the best English Composition by a member of the Freshman Class, to Francis Churchill Williams, with honorable mention of Edward Adams Shumway. Subject: *The Causes of the Mexican War.*

10. The JOSEPH YARDLEY WARNER Prize, founded by the Class of 1877, for the best thesis in Political Economy by a member of the Senior Class, to Franklin Derstine Hartzell. Subject: *The Causes that Determine the Rate of Wages.*

11. The D. VAN NOSTRAND Prize, to the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship, to George Whitfield Taylor Miller.

12. The PHI KAPPA SIGMA FRATERNITY Prize, in honor of their founder, Samuel Brown Wylie Mitchell, M.D., of the Class of 1852, for the best work in English Composition done during the year by a member of the Sophomore Class, to Henry Warren Kilburn Hale, with honorable mention of William Wilson Barr, Jr., James Hartley Merrick, and Hugh Walker Ogden.

II. IN THE FACULTY OF LAW—

1. The SHARSWOOD Prize, to William Wharton Smith.

2. The MEREDITH Prize, to Guy le Roy Stevick.

3. The Faculty Prize for the best written examination with all the Professors, to H. A. McCarthy of the Junior Class.

III. IN THE FACULTY OF BIOLOGY—

Senior Prize, by the Professor of Comparative Embryology, for the best series of histological drawings, to Charles Meredith Burk.

Digitized by Google

IV. IN THE AUXILIARY FACULTY OF MEDICINE—

1. The GEORGE B. WOOD Prize, a gold medal, to John Leffingwell Hatch, B.S., M.D., for his thesis, *The Silurian Rocks occurring at Rochester, N. Y., known as the Ontario Division.*

2. The Prize of $50 for the best examination in Hygiene, to Hill S. Warwick, B.S., M.D., for his thesis, *The Yellow Fever Epidemic of* 1878.

MAY 1, 1888.

IN THE FACULTY OF MEDICINE—

The "*Alumni Medal*," to the member of the Graduating Class who attained the highest general average in examinations, to Wm. T. Sharpless.

The "*Medical News Prize*," of One Hundred Dollars, for the best thesis, equally to John L. Hatch for his thesis, *Cadaveric Poisoning*, and Seneca Egbert for his thesis, *An Examination of Some of the Beers and other Malt Liquors and Wines Sold in Philadelphia.*

The award of Distinguished Merit was given to Adolfo Ferrer y Leon for his thesis, *Physiological Action of the Alkaloids of Colchicum.*

The Morbid Anatomy Prize of a Zentmayer Histological Microscope, by the Professor of Morbid Anatomy, for the best thesis on any subject connected with Pathology, to Caspar Wistar Sharples, for his thesis, *A Report on the Morbid Growths removed at the Surgical Clinic of the University of Pennsylvania, during Session 1887–8.*

A prize of a Pocket Case, by Dr. John B. Deaver, Demonstrator of Anatomy, for the best record of Anomalies found in the Dissecting Room, to John Traill Green.

The following prizes were awarded by Dr. J. Wm. White, Demonstrator of Surgery: First Year prize, Proficiency in Bandaging,—1st, Edgar Strayer, one copy Agnew's Surgery; 2d, Howard S. Anders, one copy Ashhurst's Surgery. Third Year prizes, for proficiency in Bandaging and in Operative Surgery—1st prize, one copy of Agnew's Surgery, to Frank P. Lenahan; 2d, one White's pocket-case of Surgical Instruments, to Charles Walter.

The following graduates of the Medical Department, Class of 1888, were appointed to Hospitals on competitive examinations. They are alphabetically arranged:

To the University Hospital—

Daniel M. Easton,
Charles M. Hay,
W. Mallet-Prevost,
Alfred C. Wood.

Digitized by Google

To the Philadelphia Hospital—

Seneca Egbert,
Samuel M. Hamill,
Joseph Kahn,
Milo G. Miller,
James H. McMillan,
John L. Rothrock,
Caspar W. Sharples,
William T. Sharpless,
William S. Vanneman,
Shepard Voorhees.

To St. Mary's Hospital—

Walter S. Green,
Howard Griesemer,
Frank P. Lenahan,
Frank W. Ray.

To St. Joseph's Hospital—

Lewis W. Blake.

To the Children's Hospital—

Philip N. Eckman,
W. Nelson Hand.

To the Presbyterian Hospital—

Edwin S. Cooke,
John Traill Green,
Hulbert Agnew,
Randolph Faries.

To the German Hospital—

Nathaniel C. Peters,
P. Harry Stelz.

To Elizabeth General Hospital, Elizabeth, N. J.—

Charles F. Perry.

To Hospitals the appointment to which is not based upon competitive examinaton:

To the Germantown Hospital—

Frank W. Gummey,
Mason W. Zimmerman.

To the Pennsylvania Hospital—

Robert G. Le Conte.

To the Episcopal Hospital—

William W. Farr (Class of 1887), Francis Rudderow (Class of 1887), William R. Lincoln.

To the Lying-in Hospital, Munich, Germany—

Riicheo Saiki.

Digitized by Google

SUMMARY.

PROFESSORS, LECTURERS AND INSTRUCTORS.

College Department,	48	
Department of Medicine, including Hospital Service,	66	
" " " (Auxiliary Faculty),	5	
" " Dentistry,	32	
" " Veterinary Medicine,	17	
" " Biology,	15	
" " Law,	5	
" " Philosophy,	25	
Emeritus Professors,	6	
		219
Repeated,		50
Total,		169

STUDENTS.

College Department,	370*	
Department of Medicine,	445	
" " " (Auxiliary Faculty),	13	
" " Dentistry,	127	
" " Veterinary Medicine,	58	
" " Biology,	37	
" " Law,	144	
" " Philosophy,	31	
Post-Graduate Course in Law,	12	
		1237
Repeated,		15
Total,		1222

ACCOMMODATIONS.

Good board can be had near the University at from five to seven dollars a week. A list of recommended boarding-houses can be seen on application to the Rev. Jesse Y. Burk, Secretary of the Board of Trustees, at the University.

EXPENSES.

	Min.	Max.
Board, thirty weeks,†	$150 00	$210 00
Tuition (according to Department and Year of the Course),	100 00	200 00
Text-books,	10 00	50 00
	$260 00	$460 00

* Includiug students in Music.

† The session in some of the Departments is from five to nine weeks longer.

Digitized by Google

INDEX.

Admission to Auxiliary Department of Medicine, 112
College, ... 36
Department of Biology, . 157
Department of Dentistry, 130
Department of Law, . . . 162
Department of Medicine, . 88
Department of Philosophy, 181
Department of Veterinary Medicine, ... 136
Post-Graduate Course in Law, ... 175
Advanced Standing, College Department, ... 38
Department of Dentistry, . 129
Department of Law, . . . 163
Department of Medicine, . 89
Department of Veterinary Medicine, ... 136
Alumni, Central Committee of the, ... 190
Society of, Medical Department, ... 110
Architect, Degree of, . . . 64
Arts, Course in, ... 41
Degree of Bachelor of, . . 63
Degree of Master of, . . . 63
Auxiliary Department of Medicine, ... 112
Course of Study, ... 114
Degrees, ... 113
Faculty, ... 112
Fees, ... 113
Matriculates, ... 112
Museum, ... 114
Prize, ... 113
Special Students, ... 113
Text-books, ... 116
Bachelor of Arts, Degree of, 63
Philosophy, Degree of, . 64
Science, Degree of, . . . 63
Biology, Department of, . . 151
Calendar, ... 5
Central Committee of the Alumni, ... 190
Certificates, Admission to College, ... 36
Special and Partial Courses, ... 62, 63
Civil Engineer, Degree of, . 64
Clinical Instruction, Department of Dentistry, . 128
Clinics, Hospital, ... 109
College Department, . . . 26
Admission to, ... 36
Course in Arts, ... 41
Course in Finance and Economy, ... 58
Course in Music, ... 69
Course in Philosophy for Undergraduates, . . . 54
Course in Science, ... 44
Courses of Study in, . . 36, 38
Degrees, ... 63
Examinations, ... 65
Faculty, ... 26
Fees, ... 64
Guardianship of Students, 64
Matriculates, ... 28
Prizes, ... 66
Public Lectures, ... 68
Scholarships, ... 65
Societies, ... 68
College Faculty, Dean of, . 26
Course in Arts, ... 41
Finance and Economy, . 58
Music, ... 69
Philosophy for Undergraduates 54
Science, ... 44
Course of Study, Auxiliary Department of Medicine, ... 114
Department of Biology, . 153
Department of Dentistry, 124
Department of Law, . . . 163
Department of Medicine, . 90
Department of Philosophy, 177
Department of Veterinary Medicine, ... 136

Digitized by Google

Post-Graduate in Law, . . 173
Courses of Study, College Department 36
Courses, Partial, Auxiliary Department of Medicine, ... 113
College Department, . . . 62
Department of Law, . . . 163
Department of Medicine, . 103
Department of Philosophy, 177
Courses, Special, Auxiliary Department of Medicine, ... 113
College Department, . . . 62
Department of Law, . . . 163
Department of Medicine, . 103
Department of Philosophy, 177
Dean of Auxiliary Faculty of Medicine, ... 112
College Faculty, ... 26
Law Faculty, ... 158
Medical Faculty, ... 76
Veterinary Faculty, . . . 133
Degrees, Auxiliary Department of Medicine, . . 113
College Department, . . 26
Department of Biology, . 157
Department of Dentistry, 130
Department of Law, . . . 164
Department of Medicine, 101
Department of Philosophy, 180
Department of Veterinary, Medicine, ... 145
Post-Graduate Course in Law, ... 175
Technical, ... 64
Degrees, 1887–88, ... 192
Dentistry, Department of, . 120
Department of Biology, . . 151
Admission, ... 157
Aim of, ... 152
Course of Study, ... 153
Degrees, ... 157
Examinations, ... 157
Faculty, ... 151
Fees, ... 156
Matriculates, ... 151
Prizes, ... 156
Department of Dentistry, . 120
Clinical Instruction, . . . 128
Course of Study, ... 124
Degrees, ... 130
Examinations, ... 129
Expenses, ... 131
Faculty, ... 120
Infirmary, ... 128
Laboratory, ... 128
Matriculates, ... 121
Museum, ... 129
Sessions, ... 129
Text-books, ... 130
Department of Law, ... 158
Admission, ... 162
Advanced Standing, . . . 163
Course of Instruction, . . 163
Degrees, ... 164
Examinations, ... 165
Faculty, ... 158
Fees, ... 171
Matriculates, ... 158
Prizes, ... 170
Special Students, ... 163
Department of Medicine, . . 71
Arrangement of Sessions, 101
Course of Study, ... 90
Degrees, ... 101
Dispensary Service, . . . 75
Expenses, ... 102
Facilities for Instruction, . 104
Fees for Special Courses, . 103
Graduation, ... 101
Hospital Staff, ... 74
Laboratory Building, . . 107
Matriculates, ... 76
Prizes, ... 110
Rosters, ... 95
Scholarships, ... 103
Society of the Alumni, . . 110
Text-books, ... 93
Department of Philosophy, . 176
Degrees, ... 180
Fees, ... 183
Matriculates, ... 176
Professors, ... 177
Department of Physical Education, ... 184
Department of Veterinary Medicine, ... 133
Admission, ... 136
Course of Study, ... 136
Degree, ... 145
Examinations, ... 145
Faculty, ... 133
Farriery, ... 145

Digitized by Google

Fees, ... 146
Hospital, ... 145, 146
Matriculates, ... 134
Museum, ... 144
Rosters, ... 148
Text-books, ... 147
Departments of the University, ... 14
Dispensary Service, Department of Medicine, . . 75
Examinations, College Department, ... 65
Entrance, ... 36
Preliminary, ... 38
Department of Biology, . 157
Department of Dentistry . 129
Department of Law, . . . 165
Department of Medicine, . 91
Department of Veterinary Medicine, ... 145
Post-Graduate Course in Law, ... 175
Expenses (See Fees).
Faculty, Auxiliary Department of Medicine, . . 112
Biology, of, ... 151
College, ... 26
Dentistry, of, ... 120
Law, of, ... 158
Medical 71
Veterinary Medicine, of, . 133
Fees, Auxiliary Department of Medicine, ... 113
College Department, . . . 64
Department of Biology, . 156
Department of Law, . . . 171
Department of Medicine, . 102
Department of Philosophy 183
Department of Veterinary Medicine, ... 146
Post-Graduate Course in Law, ... 175
Fellowships, Wharton School, 61
Finance and Economy, Course in, ... 58
Graduate Course in Law, . . 171
Guardianship, College, . . 64
Honors, 1887–88, ... 199
Hospital, University, . . 108, 117
Managers, ... 117
Veterinary, ... 145, 6
Instructors, ... 21
Law, Department of, ... 158
Post-Graduate Course in, . 171
Lectures, Public, in College Department, ... 68
Library, Towne Scientific School, ... 53
University, ... 187
Wharton School, ... 62
Master of Arts, Degree of, . 63
Laws, Degree of, ... 175
Matriculates, Auxiliary Department of Medicine, 112
College Department, . . . 28
Department of Biology, . 151
Department of Dentistry, 121
Department of Law, . . . 158
Department of Medicine, . 76
Department of Philosophy, 176
Department of Veterinary Medicine, ... 134
Post-Graduate Course in Law, ... 171
Mechanical Engineer, Degree of, ... 64
Medical Faculty, ... 71
Societies, ... 109
Medicine, Auxiliary, Department of, ... 112
Department of, ... 71
Veterinary, Department of, 133
Mining Engineer, Degree of, 64
Museum, Auxiliary Department of Medicine, . . 114
Department of Dentistry, 129
Department of Veterinary Medicine, ... 144
Music, Course in, ... 69
Partial Courses, ... 62
Physical Education, Department of, ... 184
Philosophy, Department of, 176
For Undergraduates, Course in, ... 54
Post-Graduate Course in Law, ... 171
Admission, ... 175
Course of Study, ... 173
Degrees, ... 175
Examinations, ... 175
Fees, ... 175
Matriculates, ... 171
Practical Chemist, Degree of, 64

Digitized by Google

Prizes awarded, 1887–88, . . 200
Auxiliary Department of Medicine, ... 113
College Department, . . . 66
Department of Biology, . 156
Department of Law, . . . 170
Department of Medicine, . 110
Professors, ... 17
Provost, ... 9, 15
Public Lectures, College Department, ... 68
Requirements for Admission (See Admission).
Scholarships, College Department, ... 65
Department of Medicine, . 103
Science, Technical Courses in, ... 44
Secretary of the University, 15
Sessions, Department of Dentistry, ... 129
Department of Medicine, . 101
Society of the Alumni, Department of Medicine, 110
Societies, Literary and Scientific, ... 68
Medical, ... 109
Special Courses (See Courses).
Technical Courses in Science, 44
Degrees, ... 64
Text-books, Auxiliary Department of Medicine, 116
Department of Dentistry, . 130
Department of Medicine, . 93
Department of Veterinary Medicine, ... 147
Towne Scientific School, The, 44
Methods of Study in, . . 51
Library of, ... 53
Trustees, ... 15
Treasurer of the University, 15
Undergraduate Course in Philosophy, ... 54
Veterinary Medicine, Department of, ... 133
Vice-Provost, ... 9, 17
Wharton School, The, . . . 58
Fellowships, ... 61
Library, ... 62
Methods of Work, ... 60

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google